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**THE INSECT PEST SURVEY
BULLETIN**

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**BUREAU OF
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INSECT PEST SURVEY BULLETIN

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THE MORE IMPORTANT RECORDS FOR FEBRUARY

Fuller's rose beetle was not very materially affected by temperatures ranging from 4° to 15° below zero in parts of Georgia. Of 57 beetles collected 53 were dead. This is approximately the same proportion of mortality as occurred in previous winters.

Seed-corn maggot was generally prevalent in southern Virginia and South Carolina.

A spring survey indicates 34 percent of the wheat plants in some sections of Illinois infested with hessian fly.

The corn lanternfly was collected late last year in New Jersey.

Very mild winter weather was accompanied by activity of the alfalfa weevil in the San Joaquin Valley of California.

Pea aphid is practically absent in parts of Louisiana as a result of the killing of peas in that region by the cold weather. In California this insect is quite abundant in alfalfa fields in the San Joaquin Valley.

The vetch bruchid was recorded late in January in a mill in Linn County, Oreg., 10 miles south of any previous record.

Practically all stages of the sugarcane borer in standing cane were killed by the cold weather. Those in buried trash are coming through the winter in very good condition.

San Jose scale did not suffer any unusual mortality, despite the cold weather in southern Illinois, where 15° below zero Fahrenheit was recorded at most of the places where samples were taken.

Very heavy infestations of the eye-spotted budmoth were observed in the Santa Clara Valley of California where they did considerable damage to French prunes last year.

The European red mite is apparently on the increase in northwestern Virginia. Eggs of this mite are also reported as being very numerous in Connecticut.

Citrus aphid is very scarce in Florida, as is also citrus whitefly and Florida red scale, due largely to partial defoliation of citrus caused by the cold weather. Purple scale is passing the winter successfully, as but little wood was killed.

A heavy infestation of the potato psyllid was reported from Hidalgo County, Tex., early in January.

The banded cucumber beetle has consistently decreased with each cold spell during the winter and these insects disappeared entirely during the last cold wave.

In parts of southern California, cabbage is 45-percent infested by the imported cabbage worm.

The heaviest infestation of sweetpotatoes by the sweetpotato leaf beetle was observed on storage potatoes in Arkansas this past winter.

Pepper weevils survived the winter in very large numbers in southern California, the survival being five times that normally observed. Due to the mild winter the weevils did not migrate from the pepper plants to nightshade, except where the pepper plants were entirely destroyed.

Household infestations by the brown dog tick were reported from New York, Michigan, Illinois, and Kansas.

GENERAL FEEDERS

EUROPEAN EARWIG (Forficula auricularia L.)

California. A. E. Michelbacher (February 24): Careful search made by the reporter for the European earwig in an area in Berkeley that is sometimes rather heavily infested. Not a single individual encountered up to the present.

SUGAR-BEET WIREWORM (Limonius californicus Mann.)

California. M. W. Stone (February 9): Sugar-beet wireworms found in a lima-bean field near Oxnard, Ventura County, attacking edible species of mushrooms that had just emerged through the soil after a heavy rain. As many as 16 wireworms found on a single mushroom, feeding inside the stalk and on the underground portion. Two full barrels of infested mushrooms dug up in this 60-acre field.

WESTERN SPOTTED CUCUMBER BEETLE (Diabrotica soror Lec.)

California. A. E. Michelbacher (January 3): Found in abundance in the San Joaquin Valley on December 19, 1939. In one field what is believed to have been a newly emerged adult was collected and copulating beetles were observed throughout the area. (February 24): The number of beetles collected in the San Joaquin Valley on February 12 per 100 sweeps ranged from 1 to 11. The number collected in the different fields in the region adjacent to the San Francisco Bay on January 18 ranged from 4 to 81.

FULLER'S ROSE BEETLE (Pantomorus godmani Crotch)

Georgia. T. L. Bissell (February 27): Minimum temperatures at Experiment, central Georgia, in January and February were -15.6° and -4.4° F. respectively. Weevils scarce in collections made thereafter, with the exception of P. godmani, 2 alive and 53 dead. However, collections of this species in 2 previous winters showed the same proportion of dead.

CUTWORMS (Noctuidae)

Florida. J. R. Watson (February 21): Some damage, but less than is usual during warmer winters.

California. J. Wilcox and L. E. Reed (January 22): Variegated cutworm (Peridroma margaritosa Haw.) quite numerous in parts of a 10-acre potato field at Oceanside, southern California. Serious enough to justify use of control measures. About 1 out of 10 acres of young lima beans killed.

CEREAL AND FORAGE - CROP INSECTS

WHEAT

CHINCH BUG (Blissus leucopterus Say)

Indiana. C. Benton (February 21): To determine winter mortality in hibernation quarters, 22 one-fifth-square-foot samples of Andropogon furcatus and A. scoparius were collected on January 31 from 2 localities in Tippecanoe County and 1 locality in Benton County. Mortality found to be 27 percent, based on the recovery of 3,255 live and 1,215 dead bugs. Weather in this area unusually cold, especially in January, with frequent temperatures below zero. The ground was snow-covered during much of this period.

Illinois. W. P. Flint (February 23): A number of samples of hibernating bugs brought in from favored situations, all being taken in the east-central part of the State. In nearly all cases the bugs were protected by snow during the lowest temperatures, and survival is quite high, probably a little above normal.

Missouri. L. Haseman (February 23): Preliminary checkups in central Missouri on hibernating chinch bugs indicate low winter mortality.

Oklahoma. R. G. Dahms (February 26): Recent surveys indicate that winter mortality in southwestern Oklahoma was less than 5 percent, despite the fact that January was the second coldest month on record.

HESSIAN FLY (Phytophaga destructor Say)

Illinois. D. W. LaHue (February 21): Material collected on February 16 from a heavily infested field of fall-planted wheat near Chrisman showed 34 percent of the plants to be infested with full-grown larvae and some puparia. Many other plants showed characteristic injury, but only shriveled remains of larvae could be found. On December 14, 1939, this field showed 50 to 75 percent of the plants to be infested with larvae of all sizes, mostly half-grown or over; no puparia were found. Examination of material from another heavily infested field of volunteer wheat nearby showed all larvae in puparia on December 14. Puparia examination made from material collected on February 16 showed out of 125 puparia, 106 containing live larvae, 10 dead larvae, 4 dead pupae, and 5 empty puparia, showing some fly emergence late last fall.

CORN

CORN EAR WORM (Heliothis armigera Hbn.)

Mississippi. C. Lyle (February 23): Larvae found feeding on chrysanthemum flowers at State College late in October 1939. Similar damage reported from Jackson County, but no larvae found.

California. A. E. Michelbacher (January 3): A single larva taken in the San Joaquin Valley on December 19. Later found to be parasitized by Hyposoter exiguae Vier.

CORN LANTERNFLY (Peregrinus maidis Ashm.)

New Jersey. G. W. Barber (December 27, 1939): Specimens collected in New Jersey. Apparently not recorded from New Jersey heretofore. (Det. by P. W. Oman.)

ALFALFA

ALFALFA WEEVIL (Hypera postica Gyll.)

California. A. E. Michelbacher (January 3): One of the warmest falls experienced in lowland central California. In the northwestern part of the San Joaquin Valley, the alfalfa has continued to make some growth, some being 4 to 10 inches high on December 19, 1939. Alfalfa weevil found very active under these conditions, both larvae and adults being rather abundant. In the more heavily infested fields, as many as 81 adults and 240 larvae were collected per 100 sweeps of an insect net. Many of the larvae were small. In the less heavily infested part of the valley the population was small, and not more than 1 or 2 larvae or adults collected per 100 sweeps. In the heavily infested area 1 percent of alfalfa stems examined contained eggs. Altogether 7 batches of eggs were found, all at about the end of the incubation period. (February 24): On January 18 in the region adjacent to the San Francisco Bay, from 0 to 10 larvae were collected per 100 sweeps. No adults collected. In the last survey in the San Joaquin Valley, conducted on February 12, the number of larvae per 100 sweeps ranged from 0 to 690, and adults from 0 to 22. Over a rather limited area near Tracy the weevil was rather abundant. Alfalfa ranged from less than one-fourth to one-third grown. Adult Bathyplectes curculionis Thoms. were collected in fairly large numbers. Apparently they had only recently emerged from the long-cycle cocoons, as the number of parasitized larvae was rather small, only about 5 percent, as determined by rearing out the parasites from last-instar larvae collected in the field.

ALFALFA CATERPILLAR (Colias eurytheme Bdv.)

California. A. E. Michelbacher (January 3): In nearly all the alfalfa fields examined in the San Joaquin Valley on December 19, 1939, larvae were collected, the number ranging between 2 and 15, some of which were parasitized. (February 24): The number of larvae collected per 100 sweeps in different fields in the San Joaquin Valley on February 12 ranged from 0 to 5. Most of them were small and several found to be parasitized by Apanteles flaviconchae Riley. Number of larvae collected in the region adjacent to the San Francisco Bay on January 18 ranged from 1 to several, most of which were small and a number parasitized by A. flaviconchae.

PEA APHID (Macrosiphum pisi Kltb.)

Louisiana. C. O. Eddy (February 24): Normally the pea aphid occurs at University more or less abundantly throughout the winter. This year none have appeared. Peas have been killed, but alfalfa is doing well again after severe setbacks in growth owing to cold weather.

California. A. E. Michelbacher (January 3): Rather abundant to very abundant in alfalfa fields in the San Joaquin Valley on December 19. Large numbers had been killed by a fungus, and dead were noted everywhere.

A LEAFHOPPER (Aceratagallia uhleri Van D.)

Texas. R. K. Fletcher (February 22): Observed on alfalfa and clover at Dublin, Erath County, on January 15.

VETCH

VETCH BRUCHID (Bruchus brachialis Fahraeus)

Oregon. L. P. Rockwood (January 26): * Specimens of hairy vetch seed and weevils received from Linn County, collected in a mill at Albany. This is the first record obtained for Linn County and is about 10 miles farther south than the reporter was able to get them by sweeping late in May 1939. It has been observed that the weevils appear to have spread farther in and near the hills than out in the valley. This seems to be true for both sides of the Cascade Mountains, and both north and south.

SUGARCANE

SUGARCANE BORER (Diatraea saccharalis F.)

Louisiana. A. L. Dugas (February): Limited records indicate that approximately 90 percent of overwintering borers are dead. Apparently all stages hibernating in standing cane or corn were killed by the freezes. Mortality in cane trash buried before the freezes is not nearly so high as in standing stalks.

SUGARCANE ROOTSTOCK WEEVIL (Anacentrinus subnudus Buch.)

Louisiana. A. L. Dugas (February): Weevils working in cane stubbles show no detrimental effects from the freezes. They are active, and the mortality is very low.

FRUIT INSECTS

FLATHEADED APPLE TREE BORER (Chrysobothris femorata Oliv.)

Mississippi. C. Lyle (February 23): Larvae received from Washington County on October 23, 1939, with information that they were taken from a pecan tree. Reports of injury to apple received from Lee County in November 1939.

SHOT-HOLE BORER (Scolytus rugulosus Ratz.)

Mississippi. C. Lyle (February 23): Report of injury to plum trees received from Lauderdale County in December 1939.

A BORER (Scolytus sulcatus Lec.)

Connecticut. P. Wallace (February): Larvae found in apple in North Haven in November 1939.

WHITE PEACH SCALE (Aulacaspis pentagona Targ.)

Delaware. E. P. Felt (February 24): Reported as abundant on cherry and lilac near Wilmington.

SAN JOSE SCALE (Aspidiotus perniciosus Comst.)

Georgia. O. I. Snapp (January 18): Reproduction observed today at Fort Valley, central Georgia. Reproduction takes place throughout the winter in this latitude. Recent observations show that crawlers under female scale coverings were killed by temperature of 18° F. Infestation in central Georgia now greater than that of an average year.

Illinois. W. P. Flint (February 23): Overwintering scale in southern Illinois show from 20 to 30 percent survival, which is about normal and does not show any appreciable kill from the low temperatures encountered during the last 2 months, minimum temperatures of most sections from which samples were obtained having been -12° to -15° F.

APPLE

APPLE APHIDS (Aphiidae)

Connecticut. P. Garman (February 19): Eggs of Anuraphis roseus Baker and Aphis pomi Deg. are much less abundant on apple than last year.

Virginia. W. S. Hough (February 20): Eggs not numerous in the orchards of northern Virginia. About 50 miles south of Winchester the number of eggs increases considerably. During the fall months approximately 20 to 40 percent of the aphids found on apple foliage were A. roseus, either migrants or oviparous forms.

CODLING MOTH (Carpocapsa pomonella L.)

Georgia. J. E. Webb, Jr. (February 29): Examination of numerous hibernating larvae at Cornelia indicate practically no mortality from the unusually cold winter. Larvae are still completely dormant.

Illinois. W. P. Flint (February 23): Examinations of overwintering larvae in several orchards in western Illinois have shown a very high survival, both on the trunks of trees and below the snow line.

Missouri. L. Haseman (February 23): Recent checks in northwestern Missouri indicate that above the snow line in some orchards, approximately 75 percent of the hibernating larvae were dead a week ago. Breeding material in exposed outdoor screened cages at Columbia does not show such a high mortality.

FOREST TENT CATERPILLAR (Malacosoma disstria Hbn.)

General. E. P. Felt (February 24): Eggs occur in small numbers in southwestern New England and southeastern New York.

FRUIT TREE LEAF ROLLER (Cacoecia argyrosplila Walk.)

Missouri. L. Haseman (February 23): Egg surveys made during the fall and early winter indicate that this insect has definitely moved westward, so that infestation, including up to 20 or 30 egg packets to a tree, is now found as far west as central Missouri. A recent checkup on exposed egg packets indicates that in central Missouri the low temperatures have not seriously harmed hibernating eggs, though some growers in the Saint Louis area report that part of the eggs in that area have been damaged by the cold.

EYE-SPOTTED BUTMOTH (Spilonota ocellana D. & S.)

California. L. M. Smith (February): Now known to occur in several orchards in the Santa Clara Valley. During the last season it did considerable damage to French prunes and was particularly destructive to President plums. Hibernacula now abundant and estimated to occur at the rate of 100 to 500 per tree. (Det. by H. H. Keifer.)

COMSTOCK'S MEALYBUG (Pseudococcus comstocki Kuv.)

Virginia. W. S. Hough (February 20): In Virginia there are three general areas of infestation, namely, the Crozet area, the Roanoke area, and the Winchester area. In each of these areas large numbers of eggs occur on trees in heavily infested orchards.

EUROPEAN RED MITE (Paratetranychus pilosus C. & F.)

Connecticut. P. Garman (February 19): Eggs very abundant in most apple orchards in Connecticut.

Virginia. W. S. Hough (February 20): Eggs more numerous in many orchards in the Winchester area than observed in previous seasons. Apparently on the increase in Virginia. Red spiders (Tetranychus sp.) are hibernating in large numbers in a couple of orchards in the Winchester area. Eggs of P. pilosus apparently not abundant in the orchards where the red spiders are abundant. (Det. by E. A. McGregor.)

PEACH

ORIENTAL FRUIT MOTH (Grapholitha molesta Busck)

Illinois. W. P. Flint (February 23): According to reports of examinations in the peach orchards of southern Illinois, fruit buds on peach are practically all killed with the exception of those in orchards in the southern Illinois counties of Pulaski and Massac. This will probably have some effect on the population during the coming summer.

Mississippi. C. Lyle (February 23): Injured peach twigs sent in from Sunflower County early in November 1939.

PEACH BORER (Conopia exitiosa Say)

Mississippi. C. Lyle (February 23): Reports of injury to peach trees received from Clarke and Copiah Counties in December 1939, and from Monroe County in February.

Nebraska. M. H. Swenk (February 20): Reported as attacking peach trees in Otoe County on December 4, 1939.

PLUM CURCULIO (Conotrachelus nenuphar Hbst.)

Georgia. O. I. Snapp (January 30): Live adults found in Johnson and Bermuda grasses today at Fort Valley after a minimum temperature of 9° F. on January 27, and a daily minimum range of 9° to 20° F. during the 6 days previous.

CHERRY

CHERRY SCALE (Aspidiotus forbesi Johns.)

West Virginia. G. H. Geissler (February 26): Specimens of cherry with scale on them were collected at Kearneysville, Jefferson County, in the northeastern corner of the State. (Det. by H. Morrison.)

PEAR

PEAR PSYLLA (Psylla pyricola Foerst.)

Washington. J. F. Cooper and E. J. Newcomer (December 7, 1939): Hibernating adults not hard to find in Spokane County in trash at bases of trees, and under loose bark and in cracks in bark on pear trees as high as 8 or 10 feet above the ground.

PLUM

A MITE (Eupalopsis mali Ewing)

California. L. M. Smith (February 15): Found hibernating in the hibernacula of Spilonota ocellana D. & S. on President plums in the vicinity of San Jose. Found in the silken cases which had been abandoned by the budmoth larvae, 10 to 20 frequently being found in a single case. Also collected on August 29, 1939, on the lower surfaces of leaves of French prune at Cloverdale. Only

mature males and females found at that time. No commercial damage has come to the writer's attention to date. The writer believes that this is the first reference to E. mali in California. (Det. by E. A. McGregor.)

GRAPE

GRAPE BERRY MOTH (Polychrosis viteana Clem.)

Ohio. G. A. Runner (February 26): One hundred cocoons kept under outdoor conditions at Sandusky were examined on February 24. Mortality of 20 percent found, this being somewhat above February records for 1937 and 1938. Snow has covered ground since January 1, although light, and has been nearly continuous, while the minimum temperature has been -11° F.

PECAN

PECAN WEEVIL (Curculio caryae Horn)

Mississippi. C. Lyle (February 23): Pecans injured by this weevil were sent from Monroe County early in December 1939.

OBSCURE SCALE (Chrysomphalus obscurus Const.)

New Jersey. E. P. Felt (February 24): Found in injurious numbers on oak at Bound Brook.

Mississippi. C. Lyle (February 23): Specimens received from Lowndes County on water oak and from Leflore County on pecan.

HICKORY SHUCKWORM (Laspeyresia caryana Fitch)

Georgia. G. F. Moznette (February 29): Despite the low temperatures during January and February at Albany, the mortality of the hickory shuckworm was not affected. Spring pupation, however, is retarded, for the first overwintering larva to pupate was found on February 23 whereas the first pupation was observed during the first week in February in 1937, 1938, and 1939.

Mississippi. C. Lyle (February 23): Specimens received from Jones and Sunflower Counties in November and from Monroe County in December 1939. Reports of injury from Holmes County in November 1939 and from Monroe County in January.

GIANT APHID (Longistigma caryae Harr.)

Georgia. O. I. Snapp (December 11, 1939): Now very abundant on pecan trees at Byron, Peach County, central Georgia.

CITRUS

GREEN CITRUS APHID (Aphis spiraecola Patch)

Florida. J. R. Watson (February 21): Owing to the unusually cool weather since the middle of December 1939 and the recent freeze, this aphid is very scarce.

CITRUS WHITEFLY (Dialeurodes citri Ashm.)

Florida. J. R. Watson (February 21): Partial defoliation of citrus trees, owing to cold weather, will reduce the numbers, but in only comparatively small areas was defoliation complete, so that this diminution in numbers probably will not be of long duration.

Mississippi. C. Lyle (February 23): Specimens received late in October from Forrest and Harrison Counties, where they were feeding on gardenia.

FLORIDA RED SCALE (Chrysomphalus aonidum L.)

Florida. J. R. Watson (February 21): Numbers reduced by cold weather, but trees not sufficiently defoliated for this condition to last long.

PURPLE SCALE (Lepidosaphes beckii Newm.)

Florida. J. R. Watson (February 21): Although partial defoliation of citrus trees occurred, owing to the cold weather, the wood generally was not killed and the purple scale will go over on that, as well as on the leaves and fruit that did not fall.

FIG

FIG SCALE (Lepidosaphes ficus Sign.)

California. C. K. Fisher (February 16): Oviposition began at Fresno today. In 1939 oviposition began about March 4. The winter of 1939-40 has been unusually mild in the San Joaquin Valley.

BLASTOPHAGA (Blastophaga psenes L.)

California. G. H. Kaloostian (February 15): Full-grown larvae were dissected from galls in mammae caprifigs collected on January 12 at Fresno. In a second collection, made today, wasps of both sexes were found in the galls ready for emergence.

TRUCK - CROP INSECTS

VEGETABLE WEEVIL (Listroderes obliquus Klug)

Mississippi. C. Lyle (February 23): Adults sent from Forrest County in November 1939; they had been feeding on cabbage and turnips.

M. M. High (January 29): Practically all vegetable crops in southern Mississippi injured, with the exception of English peas. The insect is becoming more seriously injurious each season to turnips and other cruciferous crops.

Louisiana. C. E. Smith and R. W. Brubaker (February 29): Very scarce on old turnips which escaped killing by the freezes. Casual observations and lack of complaints from growers indicate the pest was much less abundant previous to freezes than it had been for 3 or 4 years.

CUCUMBER BEETLES (Diabrotica spp.)

Mississippi. C. Lyle (February 23): Adults of the banded cucumber beetle (D. balteata Lec.) and of the spotted cucumber beetle (D. duodecimpunctata F.) sent from Scott County in November 1939 with information that chrysanthemum flowers were being injured.

Louisiana. C. O. Eddy (February 24): Unusually cold weather and storms in Louisiana. However, D. duodecimpunctata has become active in small numbers. During the course of the winter, the number of D. balteata has consistently decreased at each cold spell. They disappeared entirely during the last one and none have reappeared.

APHIDS (Aphidae)

Florida. C. B. Wisocup (February 23): A small, steady population of aphids can be found on most vegetable crops at Sanford.

Texas. F. L. Thomas (February 22): An aphid, possibly Macrosiphum ambrosiae Thos., was observed on lettuce at Edinburg, Hidalgo County, on February 13.

TRUCK INSECTS (Lepidoptera)

Florida. J. R. Watson (February 21): Particularly scarce at present. Cold weather has undoubtedly delayed their emergence from pupal cases.

A MIRID (Engytatus geniculatus Reut.)

California. P. Cecil (December 5, 1939): Nymphs and adults numerous on late squash at Ventura, feeding on small summer and Italian varieties, causing deformities, reduction in size, and slow growth. (Det. by H. G. Barber.)

A CICADELLID (Empoasca solana Del.)

California. M. K. Hess (February 16): Collected on leaves of nightshade and lemon trees at Fallbrook, San Diego County. (Det. by P. W. Oman.)

PLANT BUGS (Lygaeidae)

Georgia. T. L. Bissell (February 27): Minimum temperatures at Experiment, central Georgia, in January and February were -15.6° and -4.4° F., respectively. Collections of Paromius longulus Dall. made thereafter showed a total of 18 alive and 34 dead, whereas collections of Orthaea basalis Dall. totaled 9 alive and 5 dead.

POTATO AND TOMATO

TOMATO PINWORM (Keiferia lycopersicella Busck)

California. J. C. Elmore (December 19, 1939): Although not reported as being of much commercial importance in most tomato-growing areas this season, this insect has built up to injurious numbers in many of the very late tomato fields of Los Angeles and Orange Counties, 25 to 50 percent of the late pickings being damaged in some cases.

BEEET ARMYWORM (Laphygma exigua Hbn.)

California. J. C. Elmore (December 18, 1939): Potatoes severely damaged near Oceanside, San Diego County, during late November and early December. Autographa sp. was also found doing some injury.

POTATO PSYLLID (Paratrioza cockerelli Sulc)

Texas. P. T. Rihard (February 22): Heavy infestation on potato at Weslaco, Hidalgo County, on January 1.

California. J. Wilcox (January 15): Older potato field of about 60 acres at Oceanside, southern part of the State, heavily infested; grower estimates only one-quarter of crop will be harvested. Younger fields show scattered infestations with only about 5 percent damage to date.

GARDEN FLEA HOPPER (Halticus citri Ashm.)

Texas. P. T. Rihard (February 22): Observed on tomato at Weslaco on January 1.

THRIPS (Thysanoptera)

Utah. G. F. Knowlton (March 1): Damaging potatoes, eggplant, and beans in experimental greenhouse at Logan.

GARDEN CENTIPEDE (Scutigera immaculata Newp.)

Pennsylvania. G. B. Sloesman (January 12): Considerable trouble with

roots of rose bushes being destroyed in greenhouses at Toughkenamon, near Kennett Square. (Det. by T. L. Guyton.)

Utah. G. F. Knowlton (December 6, 1939): A millipede, Blaniulus guttulatus Bosc., was abundant and seriously damaging bulbs, flowers, and vegetable garden plants at Richfield on October 5. Millipede damage by several species was more frequently reported during 1939 than during any year in the reporter's experience in Utah. (Det. by R. V. Chamberlin.)

SOWBUGS (Oniscidae)

R. K. Fletcher (February 22): Two heavy infestations reported, one from Fort Worth, Tarrant County, and one from Dallas, Dallas County, on January 24 and 28, respectively.

BEANS

MEXICAN BEAN BEETLE (Epilachna varivestis Muls.)

Georgia. T. L. Bissell (February 27): Following minimum temperatures of -15.6° and -4.4° F., respectively, in January and February at Experiment, collections totaled 48 alive and 3 dead.

Alabama. J. M. Robinson (February 29): Beetles were taken in hibernation under the pine needles around pine trees.

BEAN LEAF BEETLE (Cerotoma trifurcata Forst.)

Georgia. T. L. Bissell (February 27): Despite low minimum temperatures at Experiment, collections made thereafter totaled 7 alive and 1 dead.

CABBAGE

IMPORTED CABBAGE WORM (Pieris rapae L.)

Louisiana. C. E. Smith and R. W. Brubaker (February 29): Field population of the larva was reduced from an average of over 100 per 100 collard plants to about 2 per 100 collard plants by the January freezes. Some pupae survived the freezes, and a total of 4 adults have been observed in the field at Baton Rouge during the last few days of February.

California. J. Wilcox (January 15): Cabbage is just beginning to head at Olive, southern California; 45-percent infested.

CABBAGE LOOPER (Autographa brassicae Fille)

South Carolina. W. J. Reid, Jr. (February 29): In spite of the fact that temperatures have been below normal throughout the winter in the Charleston area, a few cabbage loopers have been found on cabbage. During the coldest part of January several larvae of various

sizes were observed to have penetrated the center portion of heads of cabbage of the fall crop, evidently seeking protection. The present population appears to be about what is found during the average season.

Florida. J. E. Watson (February 21): There are some cabbage loopers on cabbage.

Louisiana. C. E. Smith and R. W. Brubaker (February 29): A single larva was observed on cabbage at Houma, February 26, while none have been found in the field at Baton Rouge, since the low temperatures which occurred the last half of January. The population was at a very low ebb for about a month previous to freezes. The population of this species is normally from low to absent on field crucifers in this area from about the middle of December to the last of March or first of April, and seldom reaches destructive numbers until the latter part of April.

Texas. P. T. Riherd (February 21): The cabbage looper was observed on cabbage at Starr, Hidalgo County, and in Cameron County from January 1 to 15.

DIAMONDBACK MOTH (Plutella maculipennis Curt.)

South Carolina. W. J. Reid, Jr. (February 29): Despite the below normal temperatures in the Charleston area, this insect has been found in limited, but apparently about normal, numbers throughout the winter. A small brood of larvae developed on young plants of the spring crop of cabbage during January and early in February, pupated about the middle of the month, and newly hatched larvae of what appears to be another brood were found on February 29. As usual, the low temperatures seem to hold the species in check.

Louisiana. C. E. Smith and R. W. Brubaker (February 29): Observations made from Baton Rouge to near the Gulf coast south of Houma, indicate that the larvae survived the January freezes better than either the cabbage looper or the imported cabbage worm. In counts made on collards at Baton Rouge, during several weeks previous to and since the freezes, there was little difference in the population, which consisted of an average of approximately 50 larvae per 100 collard plants.

Texas. P. T. Riherd (February 22): Diamondback moth observed on cabbage at Starr, Hidalgo County, and in Cameron County from January 1 to 15.

California. J. Wilcox (January 15): At Olive, southern California, where cabbage is just beginning to head, 20 percent was infested with cabbage looper and diamondback moth larvae.

SEED-CORN MAGGOT (Hylemya cilicrura Pond.)

Virginia. H. G. Walker and L. D. Anderson (February 20): A large number of adults observed flying around in a field containing rotting cabbage and other decaying organic matter at Norfolk on February 19.

South Carolina. J. A. Berly (February 27): Reported as destructive to cabbage in the vicinity of Charleston.

W. J. Reid, Jr. (February 29): Apparently more abundant and injurious than usual in the Charleston area during the current winter season. It would appear that the unusually low temperatures, especially during January, have served to increase the amount of damage done by the insect. Numerous reports and observations of its injury to recently transplanted cabbage. The species was noted to have destroyed a large percentage of the germinating seed of a January planting of peas. Low temperatures and wet soils apparently delayed the germination of the peas and caused them to be more susceptible to attack by seed-corn maggots.

APHIDS (Aphididae)

Delaware. M. D. Leonard (February 16): Young cabbage plants in a greenhouse at Wilmington lightly to moderately infested by Myzus persicae Sulz. throughout January and during the first half of February.

Virginia. H. G. Walker and L. D. Anderson (February 20): Cabbage aphids have successfully overwintered on collards and Brussels sprouts at Norfolk.

South Carolina. J. A. Berly (February 27): Cabbage aphid observed in numbers on cabbage in the vicinity of Charleston.

BEETS

BANDED GREENHOUSE THRIPS (Hercinothrips femoralis Reut.)

Virginia. L. D. Anderson (January 4): Specimens collected on beets in a greenhouse at Norfolk. (Det. by F. Andre.)

TURNIP

TURNIP APHID (Rhopalosiphum pseudobrassicae Davis)

Virginia. H. G. Walker and L. D. Anderson (February 20): Present in a field of Hanover salad all winter at Norfolk and were observed giving birth to young aphids on February 13.

Mississippi. C. Lyle (February 23): Specimens on turnips received from Issaquena County early in December 1939.

Louisiana. C. E. Smith and F. W. Brubaker (February 29): Observations since the January freezes indicate that this aphid suffered a setback along with its host crops. However, there were a few present on nearly all old crop remnants which escaped being killed by the freezes.

Texas. F. L. Thomas (February 22): Found on radish at Edinburg, Hidalgo County, on February 13.

STRIPED FLEA BEETLE (Phyllotreta vittata F.)

Louisiana. C. E. Smith and F. W. Brubaker (February 29): Abundant on old turnips in several fields examined since low temperatures of January, indicating that the severe freezes had little or no serious effect on this species.

SPINACH

GREEN PEACH APHID (Myzus persicae Sulz.)

Virginia. H. G. Walker and L. D. Anderson (February 20): Spinach aphids were able to withstand the cold weather during January and continue to reproduce on spinach at Norfolk.

TARNISHED PLANT BUG (Lygus pratensis oblineatus Say)

Virginia. H. G. Walker and L. D. Anderson (February 20): Several observed crawling about on kale plants at Norfolk on February 19.

ONIONS

ONION THRIPS (Thrips tabaci Lind.)

Florida. C. B. Wiscup (February 23): Steady increase on onions at Sanford.

Louisiana. C. O. Eddy (February 24): Thrips on onions apparently even more abundant than before the severe weather.

SWEETPOTATO

SWEETPOTATO LEAF BEETLE (Typophorus viridicyaneus Crotch)

Arkansas. D. Isely (January 31): Specimens received from Rogers, Benton County, where they were taken from a storage house. Injury the most extensive that the reporter has seen, although occasional injury has been found since 1923. Infested potatoes brought in from Rogers previously this year.

STRAWBERRY

STRAWBERRY ROOT APHID (Aphis forbesi Wood)

Virginia. H. G. Walker and L. D. Anderson (February 20): Eggs and young found in strawberry fields at Norfolk on February 13.

Utah. G. F. Knowlton (March 1): Aphids (Aphis sp.) are damaging strawberries in experimental greenhouse at Logan.

A RED SPIDER (Tetranychus sp.)

Virginia. H. G. Walker and L. D. Anderson (February 20): Found in a number of strawberry fields in the Norfolk area.

PEPPER

PEPPER WEEVIL (Anthonomus eugenii Cano)

California. J. C. Elmore (December 19, 1939): Not particularly numerous in Los Angeles County during the summer but now causing serious losses in bell pepper fields. Practically all of the immature pods infested in a field at San Fernando. (February 20): This pest has survived the winter in very large numbers in Orange and Los Angeles Counties. An average of 11 adults collected per cubic foot of nightshade and pepper foliage in two localities in each county. This is about 5 times the normal survival.

C O T T O N I N S E C T S

BOLL WEEVIL (Anthonomus grandis Boh.)

Georgia. T. L. Bissell (February 27): Minimum temperatures at Experiment in January and February were -15.6° and -4.4° F. Only one dead specimen was collected thereafter, on February 5.

Alabama. J. M. Robinson (February 29): All boll weevils collected in the last few days have been dead.

Oklahoma. F. A. Fenton (February 20): Owing to weather conditions, the population of the boll weevil has undoubtedly been greatly reduced over much of the State, with the possible exception of the south-eastern part.

F O R E S T A N D S H A D E - T R E E I N S E C T S

FALL CANKERWORM (Alsophila pometaria Harr.)

General. E. P. Felt (February 24): Eggs reported as locally abundant in southwestern New England, southeastern New York, and in New Jersey.

New Jersey. F. A. Soraci (December 4, 1939): Adults observed in great numbers in Bergen County, especially along the Palisades.

SPRING CANKERWORM (Paleacrita vernata Peck)

Missouri. L. Haseman (February 23): Diggings in central Missouri on February 10 indicate that the males are ready to emerge, but none have been observed. A pupa brought into the laboratory at Columbia emerged in 24 hours.

A CERAMBYCID (Rhagium lineatum Oliv.)

Mississippi. D. W. Grimes (February 23): Live larvae and pupae found under the bark of a dead pine tree in Holmes County late in October 1939.

SNOWY TREE CRICKET (Oecanthus niveus Deg.)

New Jersey. E. P. Felt (February 24): Reported as somewhat generally injuring the small twigs of purple beech in Princeton.

A MITE (Eriophyes ceanothi Keifer)

Oregon. S. C. Jones and F. B. Bailey (February 19): Common on cinnamon bush (Ceanothus velutinus) in Lincoln County in coast range. (Det. by H. H. Keifer.)

ASH

BANDED ASH BORER (Neoclytus capreae Say)

Nebraska. M. H. Swenk (February 20): Specimens, taken from an ash block in Cedar County, were sent in on January 15.

LILAC BORER (Podosesia syringae Harr.)

Pennsylvania. E. P. Felt (February 24): Ash borers, possibly this species, reported as injuriously abundant on ash trees in the Philadelphia area.

CARPENTER WORM (Prionoxystus robiniae Peck)

Nebraska. M. H. Swenk (February 20): Complaints of attacks on ash trees received from Wayne County on December 22, 1939, from Kearney County on January 30, and from Saunders County on February 12.

ELM

AN ELM FLEA BEETLE (Altica ulmi Woods)

Connecticut. E. P. Felt (February 24): Found overwintering in numbers at Lakeville.

STEEL-BLUE GRAPEVINE FLEA BEETLE (Altica carinata Germ.)

Pennsylvania. G. B. Slesman (February 13): Found hibernating around bases and under bark of American elms at Bryn Mawr, Montgomery County. Thousands found around several large elms. Hibernating beetles found near Norristown, also in Montgomery County.

EUROPEAN ELM SCALE (Gossyparia spuria Mod.)

Pennsylvania. G. B. Slesman (February 19): Very heavy infestations on elms in the Philadelphia area.

Nebraska. M. H. Swenk (February 20): Inquiry on February 10 from Lincoln County as to control, indicating infestation on elm in that locality.

A SCOLYTID (Xyloterinus politus Say)

Connecticut. P. Wallace (February 19): Found on elm at Rocky Hill and Pomfret. Commonly found in dying elms throughout the State.

MAPLE

JAPANESE MAPLE SCALE (Leucaspis japonica Ckll.)

Pennsylvania. E. P. Felt (February 24): This scale is becoming abundant in the Philadelphia area.

PINE

EUROPEAN PINE SHOOT MOTH (Rhyacionia buoliana Schiff.)

General. E. P. Felt (February 24): This pest is increasing in numbers in southwestern New England.

NANTUCKET PINE SHOOT MOTH (Rhyacionia frustrana Comst.)

Virginia. F. R. Freund (February): A number of pupae collected from Pinus taeda and P. echinata at West Point on February 8. Four adults emerged on February 12.

WHITE-PINE WEEVIL (Pissodes strobi Peck)

General. E. P. Felt (February 24): Damage scatteringly present in southwestern New England.

PINE ROOT WEEVIL (Hylobius radicis Buch.)

General. E. P. Felt (February 24): Locally abundant in southwestern New England.

PINE BARK BEETLES (Ips spp.)

Pennsylvania. E. P. Felt (February 24): I. pini Say found breeding abundantly in several weak trees in the vicinity of Philadelphia.

Mississippi. D. W. Grimes (February 23): Specimens of I. avulsus Eich. taken from pine in Attala County early in November 1939. Live adults of I. calligraphus Germ. found under the bark of pine in Holmes County early in November.

RED-HEADED PINE SAWFLY (Neodiprion lecontei Fitch)

Maryland. Mrs. E. Stunkle (December 18, 1939): On scrub pine at Tuscarora. (Det. by R. A. Cushman.)

WHITE-PINE APHID (Cinara strobi Fitch)

New York. E. P. Felt (February 24): Numerous eggs deposited on pine needles at Oceanside, Long Island.

PINE SPITTLE BUG (Aphrophora parallela Say)

Pennsylvania. G. B. Slesman (February 19): Severe injury to several forest plantings of Scotch, Austrian, and jack pine in Schuylkill County. Infestations unusually heavy in the Philadelphia area. A smaller spittle bug, species undetermined, occurred on juniper.

SPRUCE BUD SCALE (Physokermes piceae Schr.)

Pennsylvania. E. P. Felt (February 24): This scale is increasing in numbers in the region about Philadelphia.

PINE NEEDLE SCALE (Chionaspis pinifoliae Fitch)

New Hampshire. E. P. Felt (February 24): Found to be somewhat numerous on mugho pine.

Pennsylvania. G. B. Slesman (February 19): Heavy infestations found in the Philadelphia area on Scotch, Austrian, red, and mugho pines.

SPRUCE

SITKA SPRUCE BEETLE (Dendroctonus obesus Mann.)

Alaska. F. P. Keen (February 16): According to report, the only known infestation of any magnitude in Alaska, as of November 15, 1939, is one in the Kodiak-Afognak group of islands, at the extreme edge of tree growth in Alaska. Hasty inspection this summer indicated that the infestation is subsiding somewhat but is still very extensive, although the infestation has not aroused much interest owing to the rare use and the poor grade of timber in this locality.

COOLEY'S SPRUCE GALL (Adelges cooleyi Gill.)

New York. E. P. Felt (February 24): Somewhat prevalent at Chappaqua.

Pennsylvania. G. B. Slesman (February 19): Very heavy on blue spruce and Douglas fir in the Philadelphia area.

EASTERN SPRUCE GALL APHID (Adelges abietis L.)

Pennsylvania. G. B. Slesman (February 19): Very abundant on Norway spruce. Common in eastern Pennsylvania.

TULIPTREE

TULIPTREE SCALE (Toumeyella liriodendri Gmel.)

Connecticut. E. P. Felt (February 24): Somewhat abundant in the Stamford area, and in one locality generally infested with a fungus, probably a species of Aschersonia.

WILLOW

CURRENT STEM GIRDLER (Janus integer Nort.)

Pennsylvania. G. B. Slesman (February 19): Willow sawfly very abundant on basket and other species of willow in the Philadelphia area.

INSECTS AFFECTING GREENHOUSE
AND ORNAMENTAL PLANTS

APHIDS (Aphidae)

Delaware. M. D. Leonard (January 17): An occasional alate of Rhopalosiphum rufomaculatum Wilson, only 10 in all, collected at Wilmington, in examining a number of small greenhouse chrysanthemum plants, which were somewhat infested with Macrosiphoniella sanborni Gill., and to a much less extent with Aphis gossypii Glov. (January 31): Only light to moderate infestations of M. sanborni maintained on greenhouse chrysanthemums at Wilmington during the month, although there seemed to be little parasitization. Light infestations of A. gossypii intermixed during the month with M. sanborni on chrysanthemum plants, but on a few plants or on some leaves, nearly all were A. gossypii, which became heavily parasitized by Lysiphlebus testaceipes Cress. (Det. by C. F. W. Muesebeck.) A moderate infestation of A. gossypii on many potted calendula plants in this greenhouse throughout the month; often considerably parasitized. Potted greenhouse cucumber plants more or less infested with A. gossypii, and many young to medium-sized potted mustard plants were also moderately infested by a mixture of A. gossypii and Myzus persicae Sulz. Heavy infestations of A. rumicis L. readily built up on nasturtiums during the month, with light intermixtures of M. persicae. (February 16): During the last 2 weeks, M. persicae has been gradually increasing on many greenhouse nasturtium plants infested formerly with almost pure cultures of A. rumicis. Infestation of potted mustard plants with M. persicae has built up recently until large leaves are now heavily encrusted with aphids on the undersides. Only occasional alates have developed. (February 23): During the last 2 weeks, light infestations of A. rumicis have become established on the leaves of several gladiolus plants in a section of the greenhouse in which nasturtiums were heavily infested for some time. A few days ago mustard leaves heavily infested with M. persicae were laid near a number of small nasturtium plants in the greenhouse. The aphids readily left the wilting mustard leaves for the nasturtiums, so that now the undersides of all the leaves are heavily infested.

Nebraska. M. H. Swenk (February 20): Reported on November 18, 1939, from Sarpy County that aphids were attacking some house plants.

FICKLE MIDGE (Sciara inconstans Fitch)

Nebraska. M. H. Swenk (February 20): Complaint from York County on February 4 of house plants being infested.

FLOWER THRIPS (Frankliniella tritici Fitch)

Florida. J. R. Watson (February 21): The Florida flower thrips are very scarce. There is practically no bloom on which they could live.

CITRUS MEALYBUG (Pseudococcus citri Risso)

Delaware. M. D. Leonard (February 13): Moderate infestations on a number of potted coleus plants in a greenhouse at Wilmington. Carefully examined and found to have a fair percentage of a hymenopterous parasite present. These seemed to emerge from about the second instar of the mealybug.

Nebraska. M. H. Swenk (February 20): Found to be attacking cactus, amaryllis, oleander, and other house plants in Holt County on December 18.

GREENHOUSE WHITEFLY (Trialeurodes vaporariorum Westw.)

Utah. G. F. Knowlton (March 1): Attacking potatoes, young boxelder seedlings, eggplant, and rose foliage in a greenhouse at Logan.

OYSTERSHELL SCALE (Lepidosaphes ulmi L.)

Pennsylvania. G. B. Sloesman (February 19): Heavy infestations on lilac, ash, and birch trees in the Philadelphia area.

BARNACLE SCALE (Ceroplastes cirripediformis Comst.)

Mississippi. R. Z. Pepper (February 23): Infestation found in Jones County early in November 1939.

COTTONY-CUSHION SCALE (Icerya purchasi Mask.)

Delaware. E. P. Felt (February 24): Reported in small numbers on a greenhouse acacia at Wilmington.

SOFT SCALE (Coccus hesperidum L.)

Mississippi. C. Lyle (February 23): Specimens found on poinsettia in Hinds County in November 1939.

BUFFALO TREEHOPPER (Ceresa bubalus F.)

Nebraska. M. H. Swenk (February 20): Injured twig sent from Douglas County on December 12.

A RED SPIDER (Tetranychus sp.)

Mississippi. C. Lyle (February 23): Leaves of camellia, pecan, and other plants showing signs of injury have been received from Harrison, Jasper, and Wilkinson Counties since November 1939. Reports of injury to ivy, willow, cedar, and other plants received from Lauderdale, Marion, and Sharkey Counties since October.

MYRIAPODA

California. R. E. Campbell (November 20, 1939): Adults of Diploiuulus luscus Meinert and Brachyiulus pusillus Leach have been attacking low-growing plants, especially violas, and pansies, and delphiniums at Pasadena and vicinity. Adults of Oxidus gracilis Koch have also been attacking low-growing ornamental plants at Pasadena. (Det. by H. F. Loomis.)

CACTUS

CACTUS SCALE (Diaspis echinocacti Bouche)

Mississippi. C. Lyle (February 23): Specimens sent from Noxubee County, where cactus was being injured early in January.

DOGWOOD

DOGWOOD CLUB GALL (Mycodiplosis alternata Felt)

New York. E. P. Felt (February 24): Reported as abundant at Cutchogue, Long Island.

EUONYMUS SCALE (Chionaspis euonymi Comst.)

Mississippi. C. Lyle (February 23): Found on euonymus in Winston County on December 1, 1939, and received from a correspondent in Coahoma County, where it was found on a trailing euonymus on December 5.

FERN

FERN SCALE (Pinnaspis aspidistrae Sign.)

Mississippi. C. Lyle (February 23): Specimens sent from Yazoo County early in December 1939.

GLADIOLUS

TOBACCO THRIPS (Frankliniella fusca Hinds)

Florida. J. R. Watson (February 21): Some thrips sent in from gladioli, a sprinkling of Taeniothrips simplex Morison, but more of this pest.

JUNIPER AND CEDAR

DEODAR WEEVIL (Pissodes nemorensis Germ.)

Mississippi. D. W. Grimes (February 23): A total of 134 adults collected from a few deodar trees in Attala County at intervals of 3 to 11 days between November 7 and December 16, 1939.

JUNIPER SCALE (Diaspis carueli Targ.)

Pennsylvania. G. B. Sleesman (February 19): Heavy infestations occurring on ornamental junipers in the Philadelphia area.

Virginia. A. M. Woodside (March 4): Found to be very common in Augusta County, particularly on Irish juniper, some plantings of which have been almost killed out.

Nebraska. M. H. Swenk (February 20): Specimens of infested cedar twigs received from Deuel County on January 15.

OLEANDER

POLKA DOT WASP MOTH (Syntomeida epilais Walk.)

Florida. J. R. Watson (February 21): The only insect noticed that was actually killed by the recent cold was the caterpillar and moth of this species.

PALM

PALM-LEAF SKELETONIZER (Homaledra sabalella Chamb.)

Mississippi. H. Gladney (February 23): Injured palm leaves found in Harrison County late in November 1939.

ROSE

ROSE APHID (Macrosiphum rosae L.)

Delaware. M. D. Leonard (January 31): Scattered specimens present during the month on many greenhouse rose plants at Wilmington. All were nearly mature alates and all parasitized.

I N S E C T S A T T A C K I N G M A N A N D
D O M E S T I C A N I M A L S

MAN

BEDBUG (Cimex lectularius L.)

Massachusetts. A. I. Bourne (February 23): Specimens received late in January that had been taken from poultry houses at Wrentham, Norfolk County, in eastern Massachusetts. Accompanied by the report that the houses were literally overrun by them. While such reports have been received before, comparable conditions have never been encountered. (Det. by H. G. Barber.)

Nebraska. M. H. Swenk (February 20): Reports from Stanton and Frontier Counties on November 20, 1939, and January 25, respectively, on the infestation of houses. Information requested on January 12 from Douglas County as to eradication from a chicken house.

TROPICAL RAT MITE (Liponyssus bacoti Hirst)

District of Columbia. F. C. Bishopp (March): Rat mites caused much annoyance and suffering to the occupants, especially the small children, in an apartment house in Washington. Occupants have been severely bitten, and the babies are said to have a rash resulting from the attack of these mites which are present in great numbers. (Det. by H. E. Ewing.)

South Carolina. L. Banov (February 25): Specimens from home at Charleston where occupants have been severely annoyed and bitten. (Det. by H. E. Ewing.)

Louisiana. F. C. Bishopp (February): A severe mite infestation occurred in a home in New Orleans. "The mites are very abundant and are sucking the blood from the residents." (Det. by H. E. Ewing.)

Illinois. F. C. Bishopp (February 27): Report received from Chicago of occurrence in a basement, where they were very annoying.

Missouri. F. C. Bishopp (February 27): Report from Saint Louis, indicating that these mites were found in an office, where control measures had been used early in December 1939 against previous insect annoyance.

CAT FLEA (Otenocephalides felis Bouche)

Ohio. F. C. Bishopp (February 27): Report of occurrence in a house in Newton Falls; the family was bitten and otherwise annoyed.

MOSQUITOES (Culicinae)

Missouri. L. Haseman (February 23): During the middle of February, mosquitoes which so frequently are found hibernating in basements in central Missouri, began to break their winter hibernation and are becoming annoying. Particularly true with nonanopheline species.

A SAND FLY (Culicoides furens Poey)

Florida. J. B. Hull (January): Active and numerous enough for collections to be made on the island opposite Fort Pierce, on the east coast, on January 1, 11, 12, and 19. Only a few reports of annoyance received from residents on the mainland.

FUNGUS GNATS (Mycetophilidae)

Utah. G. F. Knowlton (February 12): Reported from Logan that fungus gnats, coming into basements from adjoining potato storage cellars, are causing serious annoyance in two houses.

BODY LOUSE (Pediculus humanis corporis Deg.)

Oregon. H. H. Stage (February 1): A small shack in Sullivan's Gulch, Portland, was severely infested. (Det. by Helen L. Trembley.)

BOXELDER BUG (Leptocoris trivittatus Say)

Missouri. L. Haseman (February 23): Increasing number of complaints during February.

Nebraska. M. H. Swenk (February 20): Reported as very annoying in a house in Saline County on December 1, 1939.

Utah. G. F. Knowlton (February): Annoyance caused in houses at Milford on February 21. Unusually heavy populations reported by some residents. Very abundant and annoying in many buildings from February 14 to 24 at Logan, especially during warmer periods.

Nevada. G. G. Schweis (February 21): These bugs apparently have wintered well in northern and western Nevada, and some complaints are being received as to invasions in buildings.

BLACK WIDOW SPIDER (Latrodectus mactans F.)

Utah. G. F. Knowlton and B. A. Haws (February 24): A mature female was active outdoors today in a web in a corner of a building at Logan.

CATTLE

STABLEFLY (Stomoxys calcitrans L.)

Florida. S. W. Simmons and E. E. Rogers (February 28): No adults have been observed in Bay County in nature since January 19, when a minimum temperature of 16.5° F. was recorded, although subsequently a maximum temperature of 71.5° has been reached.

SCREWORM (Cochliomyia americana C. & P.)

Texas. D. C. Parman (January): A considerable number taken in some of the status traps, although blowfly catches during the first half of January have been rather smaller than during December. Traps had very few flies of any kind during the last half of January. It is not certain what effect low temperatures will have on the overwintering of the very high populations of C. americana present during December and early in January, but one adult emerged from a 6-inch burial test of pupae on January 31. Cases found in the vicinity of Uvalde up to January 24.

O. G. Babcock (February): Owing to cold weather blowflies are very few in number. No screwworms nor secondary screwworms (C. macellaria F.) have been observed in this section of western Texas.

BROWN WINTER TICK (Dermacentor nigrolineatus Pack.)

Texas. F. C. Bishopp (February 27): Reports from southwestern Texas indicate rather heavy infestations of many horses and cattle during January and February. Some control measures used.

SHORT-NOSED CATTLE LOUSE (Haematopinus eurysternus Nitz.)

Texas. O. G. Babcock (February 29): Normal winter development, with lice increasing in numbers. Distribution is spreading, in most cases by means of infested bulls.

POULTRY

CHICKEN MITE (Dermanyssus gallinae Deg.)

Rhode Island. A. E. Stene (February 27): Report received of a house infestation. Said to be found all over the house, even in books, and to attack people, although no serious irritation seemed to follow the bites. Pigeons were present at all times.

Nebraska. M. H. Swenk (February 20): Complaint of infestation of a house in Saline County was received on December 11, 1939.



HOUSEHOLD AND STORED-PRODUCTS INSECTS

ANTS (Formicidae)

Virginia. F. R. Freund (February 13): Queens of Prenolepis imparis Say found swarming in a house in Richmond. Workers of Tetramorium caespitum L. were found infesting a house in Richmond. (Det. by M. F. Smith.)

Mississippi. C. Lyle (February 23): Reports of damage by Argentine ants (Iridomyrmex humilis Mayr) received from Hinds County in October, from Neshoba and Washington Counties in November, and from Scott County in December 1939. Specimens received from Hancock and Washington Counties in January and February, respectively. Report of a house as being infested with Monomorium pharaonis L. received from Clarke County in November 1939. Specimens of the fire ant (Solenopsis xyloni McCook) were sent from Leflore County in November 1939 with information that they were nesting in the walls of a house.

Louisiana. C. O. Eddy (February 24): Reported as being active again.

Nebraska. M. H. Swenk (February 20): Specimens of ants taken from a building in Douglas County in mid-December 1939 were identified as Paratrechina longicornis Latr. Specimens of Pharaoh's ant, found in a building in Douglas County, were sent for identification on February 1.

A COCKROACH (Capuciniella sp.)

Minnesota. F. C. Bishopp (January): A specimen of this genus, which is rather commonly found in Central America and the northern part of South America, was reported as taken in Minneapolis.

COCKROACHES (Blattidae)

Mississippi. C. Lyle (February 23): Reports of houses infested with the German cockroach (Blattella germanica L.) were received from Alcorn, Oktibbeha, Hinds, and Monroe Counties during January and February.

Nebraska. M. H. Swenk (February 20): Request for information on control received from Hooker County on January 2. The oriental cockroach (Blatta orientalis L.) was found to be infesting a store in Madison County on December 4, 1939. Complaints of annoyance by B. germanica in houses in Saline, Platte, Burt, and Colfax Counties were received on November 18, 1939, January 29, January 31, and February 8, respectively.

Utah. G. F. Knowlton (January 18): German cockroaches reported as causing annoyance in a building at Tooele on January 6. Found in a restaurant at Logan today.

California. H. J. Ryan (October 19, 1939): B. germanica found in a house at Los Angeles on September 6. (Det. by V. E. Williams.)

TERMITES (Isoptera)

District of Columbia. F. A. St. George (December 19, 1939): Unusual emergence of Reticulitermes flavipes Kollar found swarming from infested baseboards in a heated basement apartment in Washington, probably owing to the unprecedentedly warm weather during the last 2 days and today. Temperatures ranged from 64° F. on December 17 to 61° today. Living winged adults brought in. Usually none emerge until late in February or in March.

Florida. J. R. Watson (February 21): Termites were swarming last week.

Alabama. J. M. Robinson (February 29): Termites were swarming in Auburn on February 28.

Mississippi. C. Lyle (February 23): Specimens of workers and soldiers of Reticulitermes sp., probably flavipes, were sent in early in January from Jackson County. Reports of injury received from Bolivar, Chickasaw, Coahoma, Hinds, Jones, Leflore, Newton, Panola, Quitman, Scott, Stone, and Washington Counties between October 24, 1939, and February 8.

Utah. G. F. Knowlton (January 31): Termites have destroyed some of the woodwork and damaged other parts of it in a house at Provo.

CARPET BEETLES (Dermestidae)

Nebraska. M. H. Swenk (February 20): Complaint from Douglas County on November 30, 1939, of a pantry as being infested with Anthrenus verbasci L. and A. scrophulariae L. Black carpet beetles (Attagenus piceus Oliv.) reported as injurious in a house in Douglas County on November 26.

CIGARETTE BEETLE (Lasioderma scoricorne F.)

Nebraska. M. H. Swenk (February 20): Complaints of infestations of upholstered furniture were received from Saline, Douglas, and Lancaster Counties on November 28 and December 20, 1939, and January 12, respectively. Complaint on November 30 from Douglas County of infestation of a pantry, together with other insects.

BROWN SPIDER BEETLE (Ptinus brunneus Duft.)

Mississippi. C. Lyle (February 23): About 40 adults received in January from Warren County, with information that they were found in a house.

DRUG STORE WEEVIL (Stegobium paniceum L.)

Nebraska. M. H. Swenk (February 20): Report of infestation in a pantry in Douglas County on November 30, 1939.

Washington. C. Burnside (January): Specimens came from dried red peppers purchased at a roadside stand in Yakima Valley, Yakima.

Oregon. R. L. Post (November 26): Samples of wafers and bird food, which were heavily infested, were sent in by a Portland company. The bird food originally came from California.

A POWDER POST BEETLE (Lyctus planicollis Lec.)

Nebraska. M. H. Swenk (February 20): Specimens, taken from a new oak floor of a house built in the fall of 1939 in Box Butte County, were received on January 29, with the report that they were increasing and spreading very rapidly. This represents a new northwestern record of this pest for the State.

A TENEBRIONID (Cynaeus angustus Lec.)

Washington. M. C. Lane (February 27): Found for the first time at Walla Walla, emerging in a newly constructed house, probably an accidental occurrence, as no signs of breeding within the house could be found. (Det. by M. H. Hatch.)

INDIAN-LEAF MOTH (Plodia interpunctella Hbn.)

New Jersey. H. C. Donohoe (February 17): Larva recently removed from an externally sound-appearing pecan at Trenton. For the writer this is a new natural food record for this species.

Nebraska. M. H. Swenk (February 20): Found infesting stored corn in Washington County on November 24, 1939. Specimens sent in from Douglas County on January 12, with the report that they had been found in a trunk stored in a barn in which grain was in storage.

Utah. G. F. Knowlton (February 22): Bean damaged in storage in a mill at Cedar City.

ANGOUMOIS GRAIN MOTH (Sitotroga cerealella Oliv.)

New Jersey. H. C. Donohoe (March 1): A few ears of multicolored corn, presumably "Indian corn," held in a paper bag in an office at White Horse, were submitted recently. Practically every kernel is infested.

CASEBEARING CLOTHES MOTH (Tinea pellionella L.)

Utah. G. F. Knowlton (December 19, 1939): Woolens and tanned rabbit skin fur damaged in a house at Logan. Damage to overstuffed furniture often reported.

BEAN WEEVIL (Acanthoscolides obtectus Say)

Utah. G. F. Knowlton (February 24): Examination revealed from 10 to 15 percent of beans from Logan, Cedar City, and Morgan to have been damaged.

DRIED FRUIT BEETLE (Carpophilus hemipterus L.)

California. P. Simmons (February 2): This insect survived the winter in average numbers but did comparatively small damage to the fig crop in 1939 in Fresno and Merced Counties.

STORED GRAIN PESTS

Illinois. W. P. Flint (February 23): Continued activity in corn stored in farmers' bins and in elevators and steel bins by the rice weevil (Sitophilus oryza L.) throughout the winter. Recent samples show low mortality of corn pests in infested bins of shelled corn. Temperatures of about 40° F. were registered in most of these bins during the coldest weather of January and February, although temperatures outside were -10° F., or lower.

Mississippi. C. Lyle (February 23): Adults of the red flour beetle (Tribolium castaneum Fbst.) were found in gin trash in Jackson County, and under torn wrappings on cured hams in Pike County in November 1939.

Missouri. L. Haseman (February 23): During February some complaints have come in, particularly where pests are present in sealed cribs and granaries, although owing to the winter cold in unheated buildings, activity is at a standstill.

Nebraska. M. H. Swenk (February 20): Specimens of the cadelle (Tenebroides mauritanicus L.) were sent in from Douglas County on January 12; found in a trunk stored in a barn where grain was in storage.

Montana. D. J. Pletsch (February 19): Specimens of Gnathocerus cornutus F. reported as infesting various grains in warehouses at Deer Lodge. Extent of damage unknown. This appears to be a new record for the State. Wheat badly damaged where Cathartus advena Waltl. is numerous. Control measures used in at least one instance. No apparent damage at Billings and Bozeman. (Det. by H. B. Mills.)

SAW-TOOTHED GRAIN BEETLE (Oryzaephilus surinamensis L.)

Utah. G. F. Knowlton (February 22): Bran heavily infested in storage in a building at Nephi on February 5. Stored bran damaged at Cedar City.

AN ORTALID (Chrysomya demandata F.)

Nebraska. M. H. Swenk (February 20): Maggots, taken on December 23, 1939, from silage in Scotts Bluff County, forwarded for identification.

SPECIAL NOTE

Oregon. H. H. Stage (January 30): Great numbers of Hippodamia convergens Guer. were coming out of hibernation over a strip of ground 50 feet long and 25 feet wide, on the sunny side of a small canyon at Bull Run Power Plant. From 2 to 300 individuals found. A resident had noticed them in this location in previous years.

POPULATIONS OF CHINCH BUGS IN HIBERNATION
NOVEMBER-DECEMBER, 1939

By the Division of Cereal and Forage Insect Investigations and
the Division of Domestic Plant Quarantines

Reports received from State entomological authorities and the staff of this Bureau late in the summer and in the fall of 1939 indicated that the chinch bug had become alarmingly abundant and was entering hibernation in great numbers in the North Central and in the southern Great Plains States. It was decided therefore to discuss plans for a cooperative survey to determine as exactly as possible the potential extent and density of the infestation as a basis of plans for a cooperative control campaign against the chinch bug should this become advisable in the spring of 1940.

A conference was called for this purpose at Des Moines, Iowa, on November 8, 1939. This was attended by representatives from State entomological agencies in Illinois, Iowa, Missouri, and Nebraska, as well as from the Federal Bureau of Entomology and Plant Quarantine, and resulted in plans for a cooperative survey to include all of parts of the following States: Illinois, Indiana, Iowa, Kansas, Missouri, Nebraska, Ohio, and Oklahoma. A uniform procedure of sampling was agreed upon along lines proposed by C. M. Packard, of this Bureau, and modified to conform with local conditions of hibernation where necessary in the various States concerned.

The sum of \$10,000 was allotted by the Secretary of Agriculture from the appropriation provided under the general authorization for the Control of Incipient and Emergency Outbreaks of Insect Pests and Diseases, to defray the expense of the proposed survey. It was conducted in close cooperation with the entomologists of the State experiment station and under the supervision of W. E. Dove, of the Bureau of Entomology and Plant Quarantine, with H. T. Rainwater as his assistant and Philip Luginbill and C. Benton as technical advisers. The survey was begun on November 8, 1939, and was terminated on December 15.

A total of 4,761 samples was taken in 432 counties of the 8 States, or an average of 11 samples per county. In most of the area the individual samples consisted of 1/5 square foot of big or little bluestem bunchgrass. In some States, however, complete bunches of the medium were taken and their area measured, and other suitable media, such as broomsedge or timothy, were substituted where necessary. The numbers of bugs per square foot in these samples were determined or estimated as closely as possible by tearing the samples apart and sifting them or by means of a modified Berlese funnel. The populations per square foot of hibernation medium were averaged by counties and these averages, together with figures on acreages of susceptible crops in the respective counties, were used as a basis for making estimates of maximum potential needs for creosote barriers.

A summary of the county population estimates is given by States in the following table.

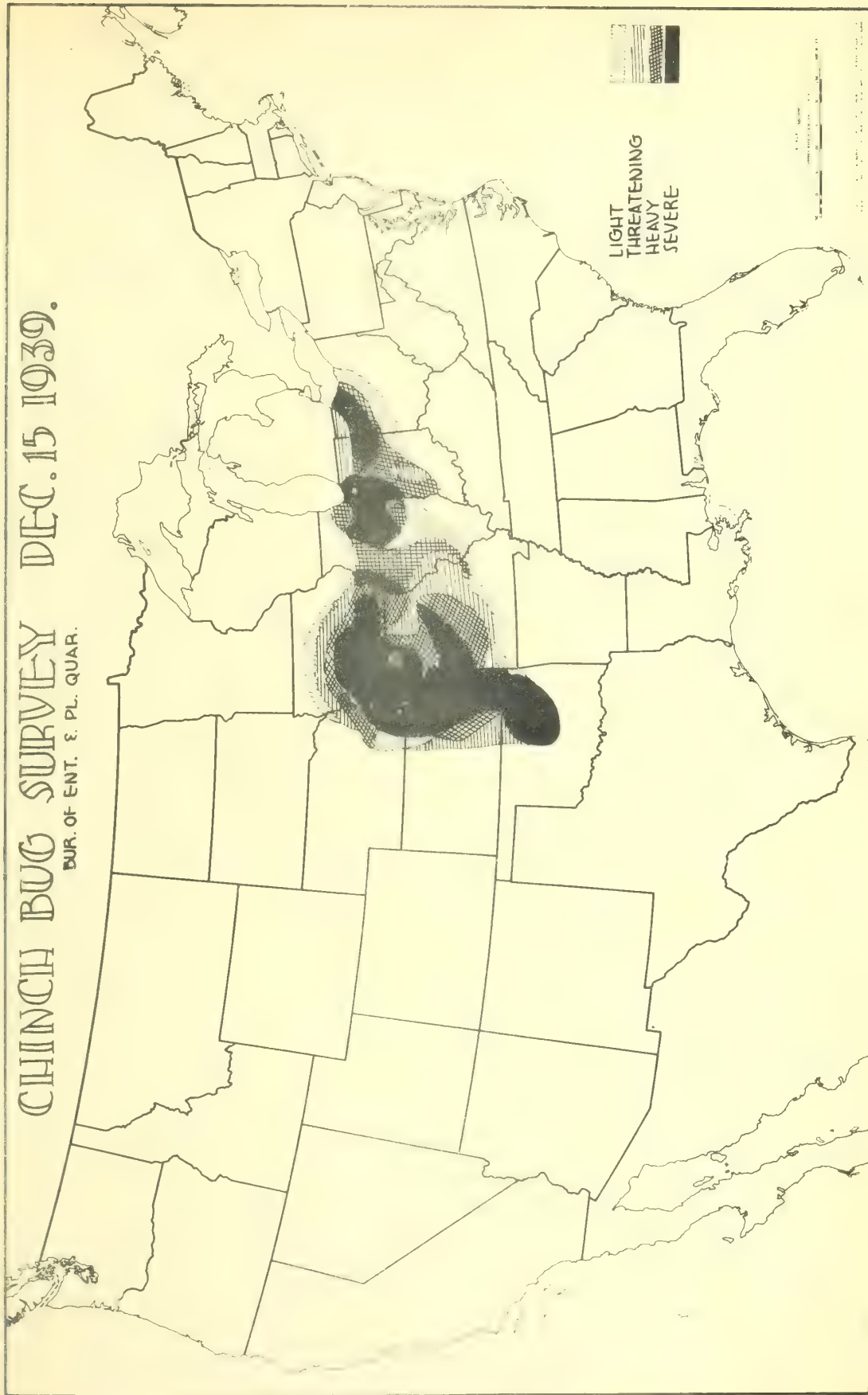
State ^{1/}	Hibernation medium	Chinch bugs per square foot of hibernation medium--county averages		
		Maximum	Minimum	Mean
		Number	Number	Number
Illinois---	<u>Andropogon furcatus</u> and <u>A. scoparius</u>	4,252	41	1,072
Indiana---	<u>A. furcatus</u> , <u>A. scoparius</u> , and timothy	1,115	4	160
Iowa-----	<u>A. furcatus</u> and <u>A. scoparius</u>	28,530	30	4,577
Kansas-----	do.	5,640	46	1,196
Missouri---	<u>A. furcatus</u> , <u>A. scoparius</u> , also broomsedge, giant redtop, dropseed and Indian grass.	6,935	4	885
Nebraska---	<u>A. furcatus</u> and <u>A. scoparius</u>	3,883	6	1,586
Ohio-----	Timothy	1,120	6	164
Oklahoma---	<u>A. furcatus</u> and <u>A. scoparius</u>	1,901	129	890

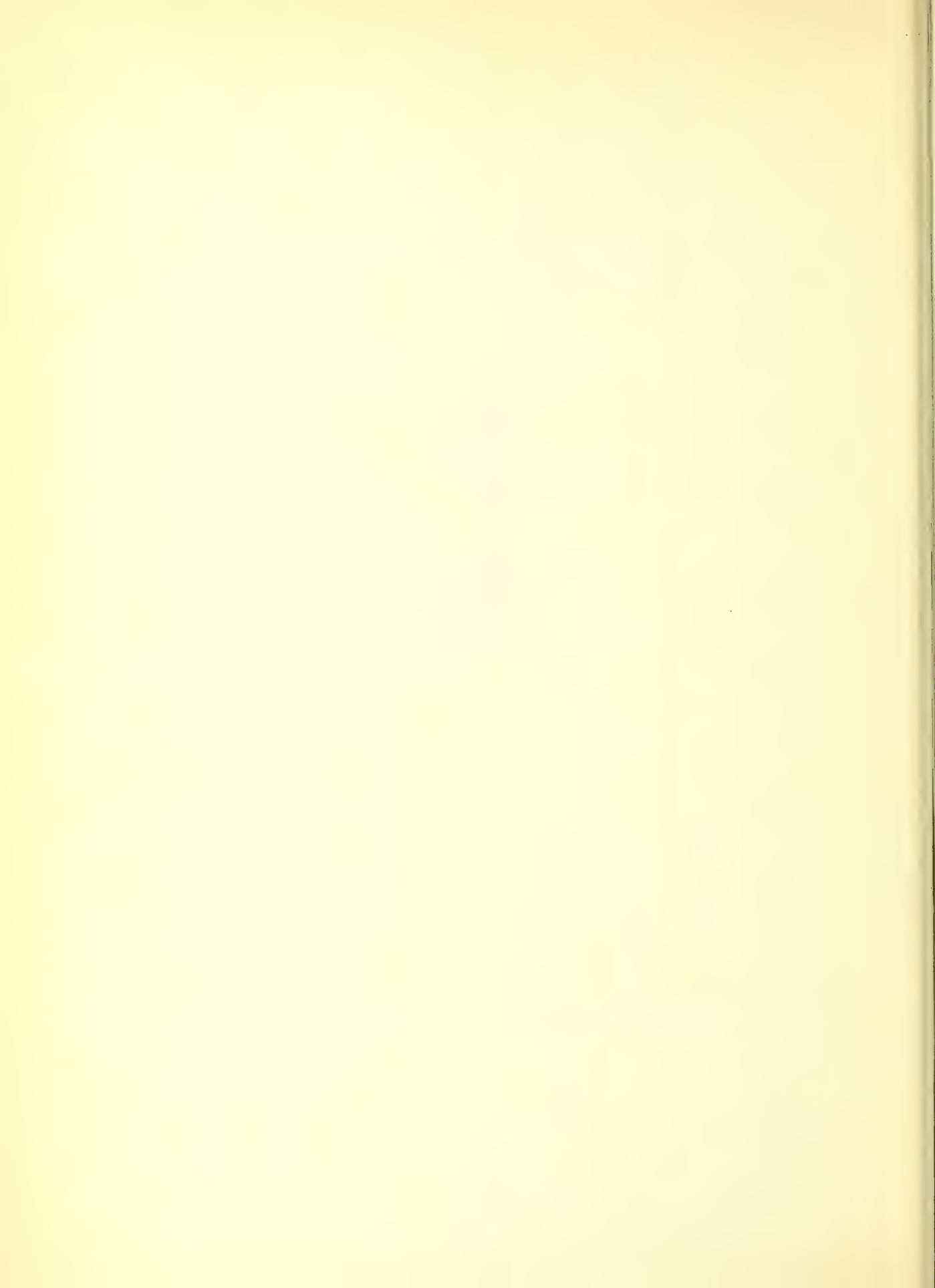
^{1/} Including infested portions only.

The area surveyed is shown on the accompanying map, which also indicates in a general way the density of chinch bug populations in hibernation at the beginning of the 1939-40 winter season. This map is to be regarded as indicating the possible maximum chinch bug menace for 1940. It should be understood, however, that the numbers of chinch bugs now in hibernation may become greatly reduced by unfavorable weather conditions or other natural agencies during the winter, spring, or early summer, before the corn crop of 1940 becomes subjected to chinch bug attack. For this reason supplementary surveys are planned, one in early spring to check up on winter mortality of the hibernating bugs, and one late in May and early in June to determine the abundance of the spring brood in small grains and the probable extent and severity of its migrations to corn.

CHINCH BUG SURVEY DEC. 15 1939.

BUR. OF ENT. & PL. QUAR.





ESTIMATES OF DAMAGE BY THE EUROPEAN CORN BORER IN 1939

By A. M. Vance, Entomologist,
Division of Cereal and Forage Insect Investigations,
Bureau of Entomology and Plant Quarantine,
United States Department of Agriculture.

Gross estimates have been calculated of the amount of damage, in dollars, caused to corn in 1939 by the European corn borer (*Pyrausta nubilalis* Hbn.) over practically two-thirds of the area infested by the insect in the United States. Although these estimates are approximate, they present a fairly reliable picture of the current economic importance of the corn borer over a wide area of its distribution.

It is estimated that the European corn borer in 1939 caused a loss of almost \$4,000,000 to the corn crop valued at approximately \$106,000,000, produced in 285 counties in the Northeastern States. Based on less extensive data, the estimated loss to corn by the borer in 1938 was placed conservatively between 2 and 2½ million dollars.

The damage estimates in 1939 were calculated in the same way as in 1938^{1/} and in other previous years. The percentage of loss of yield was obtained by applying established damage indices to the data on county abundance of the corn borer determined in the fall survey of 1939^{2/}. Data on corn production were taken from the 1935 Agricultural Census and seasonal market quotations on corn, contributed by the Agricultural Marketing Service of the United States Department of Agriculture in Washington and in the field, and by several State and city marketing agencies.

In the calculations the following prices were utilized, the 1939 quotations for corn harvested for grain being preliminary and the prices of sweet corn being averages of daily quotations for the crop marketing season.

Corn harvested for grain, cents per bushel: Maine, New Hampshire, and Virginia, 72; Vermont, Rhode Island, and Connecticut, 71; Massachusetts, 70; New York, 69; New Jersey, 66; Pennsylvania, 65; Delaware and Maryland, 62; Michigan, 54; Ohio and Wisconsin, 53; Indiana, 50.

Sweet corn, cents per dozen ears: Connecticut, eastern New York, and northeastern Pennsylvania, 17; Massachusetts, Vermont, New Hampshire, Maine, and Rhode Island, 14; New Jersey, Delaware, Maryland, Virginia, Michigan, western New York,

^{1/}See Insect Pest Survey Bul. v. 19, sup. to No. 8, Oct. 20, 1939.

^{2/}See Insect Pest Survey Bul. v. 19, sup. to No. 9, Dec. 15, 1939.

and northwestern Pennsylvania, 12; Ohio, 11; Indiana and Wisconsin, 8.

Table 1 presents the data on the value of the corn crop and the losses caused by the European corn borer in 1939 within the counties surveyed in each of 16 infested States.

The infested area surveyed in 1939, for which damage estimates have been prepared, comprised 5,274,190 acres of corn harvested for grain, with an estimated crop value of \$87,474,526, and 181,454 acres of sweet corn, with an estimated crop value of \$18,289,286. The combined acreage of grain and sweet corn was 5,455,644, and the estimated crop value of both was \$105,763,812.

The estimated total loss by the European corn borer to the above crop in 1939 was \$3,977,126. This estimated loss was divided as follows: Corn harvested for grain, \$1,846,335 (46.4 percent of the entire loss) and sweet corn, \$2,130,791 (53.6 percent of the entire loss).

In the Lake States area (Ohio, Michigan, Indiana, Wisconsin, northwestern Pennsylvania, and western New York) the loss caused by the corn borer in 1939 to corn harvested for grain was estimated at \$1,582,292 (81.7 percent of the entire loss in that area) and to sweet corn at \$354,328 (18.3 percent of the entire loss), or a total of \$1,936,620.

In the Eastern States area (New England, New Jersey, Delaware, Maryland, Virginia, eastern New York, and northeastern Pennsylvania) the loss caused by the corn borer in 1939 to corn harvested for grain was estimated at \$264,043 (12.9 percent of the entire loss in that area) and to sweet corn at \$1,776,463 (87.1 percent of the entire loss), or a total of \$2,040,506.

The greatest total damage by the corn borer to corn harvested for grain in 1939 occurred in Ohio, Michigan, and Indiana, where the estimated losses were \$853,655, \$491,627, and \$200,687, respectively. The total estimated loss caused by the corn borer to sweet corn in 1939 was highest in Massachusetts, \$614,778, with losses of \$365,858, \$362,473, \$268,913, \$174,743, \$111,989, and \$107,742, respectively, in Connecticut, New York, New Jersey, Michigan, Rhode Island, and Ohio.

Table 1. Estimates of damage by the European corn borer to corn harvested for grain, and to sweet corn, in 1939

State	Counties	Corn harvested for grain				Sweet corn				Total estimated loss of crop value
		Extent of:		Estimated loss of	Extent of:		Estimated loss of			
		area surveyed:	crop value:		area surveyed:	crop value:				
	Number	Acres	Dollars	Dollars	Acres	Dollars	Dollars	Dollars		
Connecticut	8	14,006	334,587	55,254	7,373	1,001,878	365,858	421,112		
Delaware	3	136,052	2,440,357	7,253	2,955	283,680	1,098	8,351		
Indiana	35	1,532,393	21,310,251	200,687	18,802	1,203,328	13,275	213,962		
Maine	13	3,346	85,201	221	11,150	1,248,800	5,835	6,106		
Maryland	3	71,010	960,684	1,833	169	16,224	68	1,951		
Massachusetts	11	8,509	249,116	18,798	11,364	1,272,768	614,778	633,576		
Michigan	31	780,247	10,557,825	491,527	15,315	1,470,240	174,743	666,370		
New Hampshire	9	4,072	122,869	1,680	2,365	264,880	15,887	17,567		
New Jersey	19	152,117	3,649,038	66,973	28,447	2,730,912	268,913	335,886		
New York	48	162,646	3,860,985	78,437	39,421	4,453,176	362,473	440,910		
Ohio	59	2,121,643	37,353,821	853,655	26,554	2,336,752	107,742	951,397		
Pennsylvania	20	194,443	4,794,529	42,087	11,510	1,471,480	76,882	118,969		
Rhode Island	4	2,287	51,715	10,478	1,675	187,600	111,989	122,467		
Vermont	14	13,108	353,373	7,877	1,507	168,784	11,065	18,942		
Virginia	2	46,707	798,643	8,958	13	1,243	42	9,000		
Wisconsin	6	31,004	501,532	457	2,774	177,536	93	560		
Total	285	5,274,190	87,474,526	1,846,335	181,454	18,289,286	2,130,791	3,977,126		



THE MORE IMPORTANT RECORDS FOR MARCH

Grasshoppers were beginning to hatch in the Palo Verde Valley of California during the second week in March. Overwintering nymphs of those grasshoppers which survive in the immature stage were observed in east-central Missouri.

Mormon crickets began hatching in Nevada, Washington, and Oregon in March.

The usual reports of cutworm damage to truck crops were received from the Southern and Southwestern States.

Continued reports of low winter mortality of chinch bugs were received during March from Illinois, Missouri, and southwestern Oklahoma. Reports just reaching this office indicate a winter mortality of 50 percent or over in the more northeastern infested counties in Iowa, from 10 to 40 percent in the southern and western counties of Iowa, and about 40 percent in southeastern Nebraska. In Oklahoma bugs started leaving winter quarters during the last week in the month.

The brown wheat mite (*Tetranychina tritici* Ewing) has been reported as very abundant in wheatfields in southwestern Oklahoma and seriously damaging barley in addition to wheat.

San Jose scale was materially reduced by the cold weather in Georgia.

Adults of the plum curculio started leaving hibernation quarters in central Georgia on the 20th of March.

Losses occasioned by pear thrips, somewhat heavier than normal, are reported from Lake County in California. Emergence of the adults began late in February; however, on the whole, injury is below normal.

Following the severe January freeze in Florida new growth appeared during March on the citrus trees and a few green citrus aphids started to appear. The introduced Chinese ladybeetles, however, failed to reappear up to the time of our most recent report. It is feared that these introduced predators have been destroyed.

The vegetable weevil has been found for the first time in Duval County, Fla., this being the easternmost record in the State.

Cabbage aphids were unusually abundant from South Carolina to Louisiana.

No live sweetpotato weevils that had emerged from the sweetpotatoes in the field prior to the extremely cold weather in Louisiana have been found since. Numbers were apparently reduced severely by the cold weather.

The cotton flea hopper was observed hatching on March 11 in Louisiana.

Spring cankerworm adults appeared in the Middle Atlantic and East Central States in March. In part of this area the pest will undoubtedly be very numerous. In central Missouri there are indications of the most serious infestation that has occurred in years.

The first appearance of the American dog tick in Maryland was recorded on March 30.

The usual spring reports of termites swarming from buildings have come in from practically the entire southern half of the United States, from the District of Columbia to Texas.

REPORTERS FOR THE INSECT PEST SURVEY

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GENERAL FEEDERS

GRASSHOPPERS (Acrididae)

Missouri. L. Haseman (March 27): Reports of the presence of considerable numbers of nymphs of those grasshoppers which survive in the immature stage in east-central Missouri. No checkup made on the condition of the overwintered eggs of the destructive species.

Nevada. G. G. Schweis (March 27): Eggs seem to have overwintered well but no hatch has occurred.

Utah. G. F. Knowlton (March 21): Nymphs of the coral-legged grasshopper (Hippiscus corallipes Hald.), found on Promontory Point, averaged a little more than $\frac{1}{2}$ inch in body length, and were moderately abundant in places on the range.

C. J. Sorenson (March 13): Nymphs of H. corallipes observed on range grass in the vicinity of Lehi, Utah County.

Arizona. R. G. Richmond (March 14): Grasshoppers were hatching at Yuma on March 4, damaging cantaloup and melon seedlings.

California. S. Lockwood (March 23): On March 8 and 9 it was observed that Melanoplus mexicanus Sauss. was just starting to hatch in the Palo Verde Valley, near Blythe. Eggs more numerous than observed during the October egg survey. On March 11 and 12 a survey was made in Imperial County and less than 1 percent of the eggs had hatched on sandy soil, but no hatch had taken place on the heavier ground. Average count was 15 per 10 sweeps of a standard insect net. In both the Palo Verde Valley and Imperial County, eggs showed the embryo very far advanced. Eggs of the valley grasshopper (Oedaleonotus enigma Scudd.) were found to be much later in development on the western side of the San Joaquin Valley, near Cantua Creek. Eggs seem to be fully as common as during the fall survey. Observations on March 18 on the eastern side of Stanislaus County, near Le Grand, showed the eggs to be much fewer in numbers than during the fall survey. All eggs observed were those of the devastating grasshopper (M. devastator Scudd.). In Placer County on March 20 there was no indication of any species having hatched and fewer eggs were found than last fall. Some signs of predators having cleaned out some of the **areas** infested with eggs.

H. J. Ryan (March 19): The vagrant grasshopper (Schistocerca vaga Scudd.) was observed on cercopsis at Burbank, Los Angeles County, on February 8. (Det. by V. E. Williams.)

R. G. Richmond (March 14): Grasshoppers began to appear in large numbers in southern California the first of March. Hatching occurred after a short rainy period followed by warm weather.

MORMON CRICKET (Anabrus simplex Hald.)

- Nevada. G. G. Schweis (March 27): Observed hatching rapidly in large numbers in Elko, Eureka, Humboldt, Lander, and Pershing Counties, in the northern half of the State. Control measures being requested.
- Washington. R. G. Richmond (March 16): It is reported that Mormon crickets are hatching in Franklin County.
- Oregon. R. G. Richmond (March 14): Mormon crickets were reported as beginning to hatch in Malheur County on March 8. Control measures requested. (March 16): Hatching on March 13 on Warm Springs Indian Reservation, in Eagle Valley, and in the vicinity of Halfway, Baker County.

CUTWORMS (Noctuidae)

- Louisiana. C. E. Smith and W. H. White (March 27): The black cutworm (Agrotis ypsilon Pott.) was observed damaging spring cabbage at Cutoff on March 13. On March 26 this pest was observed injuring strawberry in the vicinities of Hammond and Ponchatoula.
- Oklahoma. F. A. Fenton (March 26): Reports of cutworms from Anadarko and Lawton, southwestern Oklahoma, and from Stillwater, north-central Oklahoma, as injuring wheat and barley. This species has been tentatively identified as the dark-sided cutworm (Euxoa messoria Harr.).
- Texas. F. K. Fletcher (March 26): Reported as destroying onions and English peas in Llano County on March 6.
- Utah. C. J. Sorenson (March 13): Larvae of the pale western cutworm (A. orthogonia Morr.) were found in the first, second, and third instars on dry-farm wheat at Lehi, Utah County. Hatching probably occurred around March 1.
- Arizona. C. D. Lebert (March 15): Several species of cutworms have been observed feeding on ornamentals and garden crops in the Phoenix area, as follows: The beet armyworm (Laphygma exigua Hbn.) on lettuce and calendula; the granulated cutworm (Feltia annexa Treit.), the variegated cutworm (Peridroma margaritosa Haw.), and the yellow-striped armyworm (Prodenia ornithogalli Guen.) on flower buds. The last named was becoming abundant around lights the middle of March.
- California. L. A. Burtch (March 9): Control measures are being used against cutworms attacking grapevines in Kern County.

WIREWORMS (Elateridae)

- Washington. E. W. Jones (March 23): Emergence of overwintering adults of the Pacific coast wireworm (Limonijs canus Lec.) from emergence cages at Walla Walla began on March 2. Daily flights of males noted, beginning on March 19, in the Walla Walla and Kennewick districts. The

sugar-beet wireworm (L. californicus Mann.) was found feeding on lettuce plants at Walla Walla on March 15.

EUROPEAN EARWIG (Forficula auricularia L.)

Washington. E. W. Jones (March 23): Overwintering adults are present above the soil surface at Walla Walla.

C E R E A L A N D F O R A G E - C R O P I N S E C T S

PLANT BUGS (Lygus spp.)

Utah. G. F. Knowlton (March 21): Adults of L. elisus Van D. and L. hesperus Knight were rather abundant upon range land at Promontory Point and south of Lamo, Box Elder County.

C. J. Sorenson (March 13): L. hesperus observed on range plants in the vicinity of Lehi, Utah County.

California. S. Lockwood (March 23): L. elisus, while present in alfalfa at Blythe, in the Palo Verde Valley, and at Westmoreland, in the Imperial Valley, is far less abundant than had been expected, there being only 5 to 6 specimens per 10 sweeps of an insect net.

WHEAT AND OTHER SMALL GRAINS

HESSIAN FLY (Phytophaga destructor Say)

Missouri. E. T. Jones (March 28): Dissection of puparia from wheat in test plots at Springfield on March 17 showed 36 percent of healthy larvae in puparia. Ten percent of the larvae were unhealthy or dead, and 4 percent of the puparia were empty. The light color of many puparia indicated that a considerable proportion of the flies may have overwintered as larvae.

Kansas. E. T. Jones (March 28): Collections from fields in Geary, Marion, Morris, and Riley Counties during the last week in February indicate that a considerable proportion of a generally light population had survived the winter as larvae. In one field near Stockdale, Riley County, 60 percent of the total forms examined ranged from first-stage to full-grown white larvae. All forms appeared to be healthy and in good condition. Field examinations in southeastern Kansas on March 17 indicated light spotted infestations, with larvae generally in good condition, although some dead larvae were found.

CHINCH BUG (Blissus leucopterus Say)

Illinois. W. P. Flint (March 26): More chinch bugs were hibernating on farms in the State during the winter than ever before, with the exception of the winter of 1933-34. Approximately 75 of the 102 counties in the State included in the infested area, which extends from the northern tier of counties southward to Randolph, Washington, Wayne, and Wabash Counties. Recent counts show that large numbers have come through the winter. Area of probable infestation extends roughly 1 tier of counties farther south and 2 tiers farther north than last year.

Missouri. L. Haseman (March 27): The heavy snow blanket has apparently helped materially in protecting chinch bugs from the severe cold. Recent surveys indicate that throughout the north-central, heavily infested section of the State, winter mortality is less than 25 percent, where snow coverage was present. Some readings as low as 10 percent, and in clearer spots as high as 35 percent. In central Missouri, mortality seems to be considerably higher, as high in some counts as 30 percent, even where there was a good deal of snow.

Oklahoma. R. G. Dahms (March): Winter mortality was 1.9 percent, based on the number of live and dead bugs recovered from 50 samples of Andropogon scoparius in southwestern Oklahoma, during the first 15 days of March. A few bugs migrated from winter quarters to small grains on March 21 and 23.

BROWN WHEAT MITE (Tetranychina tritici Ewing)

Oklahoma. R. G. Dahms (March): Very abundant in most wheatfields in southwestern Oklahoma.

F. A. Fenton (March 26): One field of barley in southwestern Oklahoma has been very seriously damaged by a mite, which has been tentatively identified as this species.

CORN

SEED-CORN MAGGOT (Hylemya cilicrura Rond.)

Texas. R. K. Fletcher (March 26): Seed corn in Brown County severely injured on March 16.

ALFALFA

ALFALFA WEEVIL (Hypotrax postica Gyll.)

Nevada. G. G. Schweis (March 27): Adults observed in a recent survey of some of the alfalfa fields in Douglas County.

California. A. E. Michelbacher (March 19): On March 13, alfalfa fields in the northwestern part of the San Joaquin Valley were surveyed. The number of larvae collected per 100 sweeps of an insect net in the different fields ranged from 0 to 3,500. Adult counts ranged from 0 to 53. Populations were small over most of the infested region and in most fields less than 100 larvae were collected per 100 sweeps. Only in a relatively small area south of Tracy was a large population found, the larval count ranging from 500 to 3,500. At present the alfalfa is

from one-third to a little more than one-half grown. Alfalfa fields adjacent to the San Francisco Bay surveyed on March 18, and larval counts ranged from 20 to 240. No danger of a build-up in the population in this region. Extremely scarce in the fields around Pleasanton on the same date. Based on rearing records of larvae collected on March 4 in the San Joaquin Valley, it was found that about 25 percent of the last-instar larvae were parasitized by Bathyplectes curculionis Thoms. In the San Francisco Bay region it was found that better than 85 percent of the larvae collected on March 5 had been parasitized by Bathyplectes. Population about Pleasanton too small to determine with accuracy the degree of parasitization; however, on March 18 the only 2 large larvae collected were both parasitized. Bathyplectes is apparently an important factor in holding the larval population in check in the region adjacent to San Francisco Bay and at Pleasanton.

CLOVER LEAF WEEVIL (Hypera punctata F.)

Georgia. T. L. Bissell (March 25): Grubs plentiful on alfalfa at Experiment, central Georgia.

CLOVER ROOT CURCULIO (Sitona hispidula F.)

Georgia. T. L. Bissell (March 25): Adults present on alfalfa at Experiment.

ALFALFA CATERPILLAR (Colias eurytheme Bdv.)

Louisiana. C. O. Eddy (March 26): Active in alfalfa fields.

California. A. E. Michelbacher (March 19): Throughout the fields surveyed, in the northwestern part of the San Joaquin Valley, the region adjacent to San Francisco Bay, and at Pleasanton, larvae have been scarce. Numbers collected per 100 sweeps for the different fields have ranged from 0 to 3, seldom more than 1. Occasionally a larva is found parasitized by Apanteles flaviconchae Riley.

GREEN CLOVER WORM (Plathypena scabra F.)

Louisiana. C. O. Eddy (March 26): Active in alfalfa fields.

THREE-CORNERED ALFALFA HOPPER (Stictocephala festina Say)

Louisiana. C. O. Eddy (March 26): Adults are being observed on alfalfa.

PEA APHID (Macrosiphum pisi Kltb.)

Georgia. T. L. Bissell (March 25): Found in small numbers on alfalfa at Experiment, but none on Austrian peas.

California. S. Lockwood (March 23): Present in alfalfa in Imperial County in relatively small numbers for this time of the year.

FRUIT INSECTS

SAN JOSE SCALE (Aspidiotus perniciosus Comst.)

Georgia. O. I. Snapp (March 20): The unusually long cold period at Fort Valley, central Georgia, in January, during which a minimum temperature of 9° F. was recorded, killed a number of the mature and less than half-grown immature stages and all crawlers. As a result, the general infestation was reduced to a point below that of an average year.

Mississippi. C. Lyle (March 22): Specimens on walnut received from Wayne County on March 2. Reports of injury to fruit trees received from Winston County, from the Jackson and Grenada districts, and from the northeastern part of the State.

PEACH TWIG BORER (Anarsia lineatella Zell.)

California. S. F. Bailey (March 25): Emergence from hibernacula in almond-growing districts began on March 7 and on peach about 10 days to 2 weeks later. The early emerging larvae are now mature. Some of the small larvae were found feeding in the tiny nuts in Colusa County. Usually they do not attack the almonds until the nuts are full grown.

APPLE

CODLING MOTH (Carpocapsa pomonella L.)

New York. D. W. Hamilton (March 23): Winter mortality of larvae has been low. Only 6.25 percent in overwintering bands, examined on March 21, were dead. No extremely low temperatures have occurred. It was below zero on four occasions, and the minimum at Poughkeepsie for the winter was -6° F. Spring development is later than that of the last few years.

Missouri. L. Haseman (March 27): The severe winter has caused considerable mortality, some readings in northwestern Missouri running as high as 75 percent. Mortality materially smaller throughout central Missouri.

Missouri and Kansas. H. Baker (March 22): Low temperatures during much of the month of January, with a minimum of -27° F. at the St. Joseph, Mo., airport in a bottom, or low-land, location, killed many hibernating larvae. Mortality in northwestern Missouri and northeastern Kansas has been found to vary widely according to location, but an average of checks in several orchards indicates it to be from 35 to 40 percent in hill-land orchards and from 60 to 75 percent in bottom-land ones.

EASTERN TENT CATERPILLAR (Malacosoma americana F.)

Michigan. E. I. McDaniel (March 21): Eggs observed on March 18 at Detroit.

Oklahoma. F. A. Fenton (March 26): Very prevalent on wild plums and related wild shrubs in southeastern Oklahoma.

California. S. F. Bailey (March 25): In Sonoma County tent caterpillars (Malacosoma sp.) are now hatching out, in some instances being forced to feed on the green buds and blossoms, since the leaves have not appeared.

FRUIT TREE LEAF ROLLER (Cacoecia argyrospila Walk.)

Arizona. C.D. Lebert (March 15): Egg masses of one of the fruit tree leaf rollers, possibly this species, were found to be numerous on young peach trees in an orchard in the lower Verde area of Arizona on March 5. About 30 percent of the masses were hatched, and webbing was in evidence in the small branches. No foliage had appeared.

California. S. F. Bailey (March 25): Occasional larvae seen in pear orchards feeding in the buds in Solano County.

FLATHEADED APPLE TREE BORER (Chrysobothris femorata Oliv.)

Mississippi. C. Lyle (March 22): Injury to apple trees in Choctaw County reported on March 4.

Nebraska. M. H. Swenk (March 15): Complaint received from Gage County on March 4 of infestations on ash, hackberry, elm, and linden trees.

PEACH

PLUM CURCULIO (Conotrachelus nenuphar Hbst.)

Georgia. O. I. Snapp (March 20): Adults started to appear from hibernation at Fort Valley, central Georgia, today, the first individual of the season being taken from a peach tree by jarring. Adults do not appear from hibernation in numbers until the mean temperature has been above 60° F. for several successive days. Such a period of warm weather has not yet occurred this spring at Fort Valley. About three-fourths of the early peach blooms had opened when the first specimen was caught.

Texas. R. K. Fletcher (March 26): Request for control on peach in Shelby County on March 8.

PEACH BORER (Conopia exitiosa Say)

Mississippi. C. Lyle (March 22): Reports of injury to untreated peach trees in Lauderdale and Pike Counties. Some damage caused in the Jackson district.

PEAR

PEAR THRIPS (Taeniothrips inconsequens Uzel)

California. S. Lockwood (March 23): Somewhat heavier loss reported in Lake County than had been anticipated.

S. F. Bailey (March 25): Very irregular in its appearance this spring in northern California. In some of the more badly infested counties, such as Solano, Sonoma, and Napa, emergence has been very light. In other sections severe infestations in small areas have appeared. Emergence of adults began on February 24 and continued for a period of slightly over 4 weeks. Injury to pears much less than in previous years.

PEAR LEAF BLISTER MITE (Eriophyes pyri Pgst.)

California. S. Lockwood (March 23): Responsible for some rather heavy damage to the overwintering pear buds in the Sacramento Valley and contiguous mountain pear orchards. Particularly true in pear orchards where no control measures were applied, whereas well-treated orchards show no damage. Considerable damage where treatment was applied late in the fall or in the winter.

YOUNGBERRY

ROSE SCALE (Aulacaspis rosae Bouche)

Mississippi. C. Lyle (March 22): Specimens on youngberry plants received from Lauderdale County.

GRAPE

GRAPE LEAFHOPPER (Erythroneura comes Say)

Utah. G. F. Knowlton (March): Infestation reported to be less abundant in a small vineyard at Hooper than for several years. Found on grass near Virginia creepers at Logan on warm days.

GRAPE SCALE (Aspidictus uvae Comst.)

Virginia. Mrs. J. Howard (March 22): Grapevine from Falmouth injured. (Det. by H. Morrison.)

PECAN

HICKORY SHUCK WORM (Laspeyresia caryana Fitch)

Florida. S. O. Hill (March 20): The first emergence of adults of the overwintering generation at Menticello, Jefferson County, was on March 20, as compared with first emergence on February 20, in 1939 and March 1 in 1938.

CITRUS

GREEN CITRUS APHID (Aphis spiraeicola Patch)

Florida. J. R. Watson (March 21): New growth appearing on trees defoliated by freezes in January, and a few green citrus aphids. None of the predacious Chinese ladybeetles (Leis dimidiata quinquespilota Hope) have been seen since the freeze, but native ladybeetles were scarce also, and it is still hoped that this valuable species has survived the freeze.

CITRUS THRIPS (Scirtothrips citri Moulton.)

California. L. A. Burtch (March 9): Several growers are planning to use measures for the control of this pest in Kern County.

FIG

FIG SCALE (Lepidosaphes ficus Sign.)

California. C. K. Fisher (March 20): Eggs are just beginning to hatch at Fresno. Hatching was first observed at Fresno on April 23 in 1937, on April 18 in 1938, and on April 5 in 1939.

TRUCK - CROP INSECTS

VEGETABLE WEEVIL (Listroderes obliquus Klug)

Florida. J. R. Watson (March 21): Specimen sent in from Jacksonville. This is the first time this weevil has been found as far east as Duval County, Monticello, in Jefferson County, being the farthest east of our previous records.

Mississippi. C. Lyle (March 22): Larvae received from Jones County on March 10. Turnips being seriously damaged.

Louisiana. C. O. Eddy (March 26): Larvae reported in a number of gardens.

CUCUMBER BEETLES (Diabrotica spp.)

South Carolina. J. G. Watts (March 20): Since March 10, a few adults of D. duodecimpunctata F. have been noted on the wing and on various vegetables and weeds at Blackville.

Georgia. T. L. Bissell (March 25): One adult of D. duodecimpunctata found on alfalfa on March 19 at Experiment, central Georgia.

O. I. Snapp (March 18): Southern corn rootworm adults have begun to appear from hibernation at Fort Valley, central Georgia, a number having been jarred from peach trees today. These insects feed on the flowers and tender leaves of peach trees early in the spring.

Louisiana. C. O. Eddy (March 26): Only one specimen of D. balteata Lec. taken after extensive search. This insect was extremely abundant last year.

ASPARAGUS BEETLE (Crioceris asparagi L.)

South Carolina. J. G. Watts (March): Active in hibernation cages at Blackville since February 25.

THRIPS (Thysanoptera)

Maryland. F. F. Smith (February 10): Three species, Thrips tabaci Lind., Hercinothrips femoralis Reut., and Thrips nigropilosus Uzel, have been abundant and very injurious to lettuce at Beltsville. The last-named species has also been found on chrysanthemum. (Det. by F. Andre.)

South Carolina. J. G. Watts (March 21): Frankliniella tritici Fitch, F. fusca Hinds, and T. tabaci, which are usually active and occasionally abundant on different plants at Blackville at this time of year, are extremely scarce at present.

Florida. J. R. Watson (March 21): Still very scarce over most of the State, owing to the scarcity of blossoms during this unusually cold winter, but a complaint has come in of heavy damage to beans in the Homestead district, in southern Florida, presumably by the Florida flower thrips (F. tritici). Infestation probably accounted for by the fact that this region was not so hard hit by the cold as was most of the State; however, small numbers of thrips are appearing in the Gainesville and other sections.

POTATO AND TOMATO

COLORADO POTATO BEETLE (Leptinotarsa decemlineata Say)

Mississippi. F. A. Smith (March 22): Observed at Tunica, northwestern Mississippi, on March 12.

WESTERN POTATO FLEA BEETLE (Epitrix subcrinita Lec.)

Washington. E. W. Jones (March 23): A few overwintering adults taken in flight by rotary trap at Walla Walla on March 22. (Det. by M. C. Lane.)

A TENEBRIONID (Ulus elongatulus Csy.)

Texas. R. K. Fletcher (March 26): Found destroying 15 percent of freshly set tomato plants on March 21 in Lavaca County.

TOMATO WORM (Protoparce sexta Johan.)

California. H. J. Ryan (March 19): Observed on tomato at Burbank, Los Angeles County, on February 6.

MOLE CRICKETS (Gryllidae)

South Carolina. J. G. Watts (February 25): Very limited activity by these pests in a tomato seedbed at Blackville.

BEANS

BEAN LEAF ROLLER (Urbanus proteus L.)

Florida. J. R. Watson (March 21): This pest, which is usually rather common at this time of the year, has not been seen since the freeze late in January.

CABBAGE

DIAMONDBACK MOTH (Plutella maculipennis Curt.)

Florida. J. R. Watson (March 21): Sent in from Duval County, where it was infesting stock.

APHIDS (Aphidae)

South Carolina. J. G. Watts (March 14): About 10 percent of the cabbage plants at Blackville are infested with cabbage aphid. Both hymenopterous parasites and syrphid predators are active.

Mississippi. C. Lyle (March 22): Reports of injury to cabbage plants by plant lice, probably Brevicoryne brassicae L., received from the Jackson and Grenada districts and the northeastern part of the State. Only light damage caused.

Louisiana. C. E. Smith (March 27): The cabbage aphid (B. brassicae) has been unusually abundant at Baton Rouge on seeding stalks of cabbage, collards, mustard, and young spring cabbage throughout March.

SWEETPOTATO

SWEETPOTATO WEEVIL (Cylas formicarius F.)

Louisiana. K. L. Cockerham (February 23): Five examinations in field plots and 7 field examinations on heavily infested farms in the vicinity of Sunset, St. Landry Parish, southwestern Louisiana, and also examinations in longevity cages, indicate that all adults that had emerged from sweetpotatoes in the fields prior to the extreme cold weather from January 15 to February 1, were killed. A low temperature of 11° F. was recorded. Some live larvae, pupae, and adults have been found in sweetpotatoes taken from the surface of the ground on several farms and dissected, but apparently the percentage of living specimens is less than that in preceding years, when the cold was not so severe.

COFFEE-BEAN WEEVIL (Araccerus fasciculatus Deg.)

Alabama. J. M. Robinson (March 23): Found attacking sweetpotatoes at Aliceville on March 2.

STRAWBERRY

RED SPIDER (Tetranychus sp.)

Louisiana. C. O. Eddy (March 26): Numerous enough in some of the strawberry fields in eastern Louisiana to necessitate control measures.

TOBACCO

GREEN JUNE BEETLE (Cotinis nitida L.)

Florida. F. S. Chamberlin (March 18): Specimens of larvae taken in tobacco plant bed at Quincy on March 15. (Det. by W. H. Anderson.)

TOBACCO FLEA BEETLE (Epitrix parvula F.)

Virginia. C. B. Dominick (March 23): Very little warm weather in the Chatham district. None captured on flight screens to date.

MOLE CRICKETS (Scapteriscus sp.)

Florida. F. S. Chamberlin (March 27): Although mole crickets are sufficiently numerous to require control measures on tobacco plant beds in Gadsden County, they appear ~~to be~~ somewhat less abundant than normal.

C O T T O N I N S E C T S

BOLL WEEVIL (Anthonomus grandis Boh.)

Florida. C. S. Rude (March 23): Examinations of hibernation cages in Alachua County early in March showed no indications of activity. Cages located at McIntosh, Marion County, and at Fruitland Park, Lake County, were examined on March 21. At McIntosh 17 active weevils were observed in the 3 cages in the open and 11 in the 3 cages at the edge of the woods, representing 0.8 and 0.52 percent, respectively, of the weevils placed in these cages last fall. At Fruitland Park only 1 active weevil was observed in the 2 cages, representing 0.07 percent of the weevils installed last fall.

Mississippi. E. W. Dunnam (March 27): One live specimen found on March 15 at Stoneville, following a minimum winter temperature of 0° F. ~~January~~ 27.

Louisiana. R. C. Gaines and assistants (March 23): No weevils taken on field flight screens in Madison Parish for the week ended March 22 in 1938 and 1940, but 3 were taken during the same week of 1939. In examinations of Spanish moss no live weevils were found, but 7 live weevils were found in trash, as compared with 11 found in 1939.

PINK BOLLWORM (Pectinophora gossypiella Saund.)

Texas. R. E. McDonald (February 26): Inspection of some of the open cotton on stalks in one field resulted in the finding of one specimen in a seed on February 19 in a field $4\frac{1}{2}$ miles north of Mission, in Hidalgo County. (Det. by C. Heinrich.)

A. J. Chapman (March 2): Examinations at the end of February of 700 bolls in Presidio County showed that mortality in bolls on soil surface was 2.81 percent and in bolls on plants 11.99 percent. (March 9): Soil examinations during the week in Presidio County, to determine carry-over in the soil, showed averages in 3 plots of 0.65, 1.05, and 4.6 larvae per square yard.

COTTON FLEA HOPPER (Psallus seriatus Reut.)

Louisiana. I. J. Becnel (March 26): Nymphs have been emerging from eggs deposited late last fall in host plants. Plants were placed in emergence cages and records on emergence are being made. First emergence was on March 11.

F O R E S T A N D S H A D E - T R E E I N S E C T S

G Y P S Y M O T H (Porthetria dispar L.)

Vermont. A. F. Burgess (February 20): Up to February 10, eight infestations had been located in Middlebury, Addison County.

(February 27): Preliminary examinations indicate a considerable reduction in the intensity of infestation in a large part of the area in the northern half of the State, between the Connecticut River and the barrier zone. In the towns of Colebrook and Harwinton, bordering the barrier zone more scattered infestations found than ever before, most of them consisting of a single egg cluster, but an area in Harwinton has been discovered where the infestation is heavier.

J. N. Summers (March 13): Two additional infestations found in Bristol Township, Addison County, making a total of five in that town. Control work done at an infestation in Brandon, Rutland County.

Massachusetts. J. N. Summers (March 13): Scattered infestation found in practically all places where scouting has been done in Shelburne and Ashfield, but conditions in Shelburne appear to be not so severe as last year, and the infestation decreases west of Ashfield.

Connecticut. A. F. Burgess (February 20): At Southbury, New Haven County, another infested spot has been located about $\frac{1}{4}$ mile from the original infestation. (February 27): Infestation in the Granby area not so severe as last year, but considerable spread of scattered infestation observed toward the west. (March 6): Some increase in the infestation in the West Peak area, near Meriden. Part of this infestation extends into Berlin and Southington, the heaviest part being in the latter town. In the southern part of the State, infestations have been greatly reduced as the result of control measures.

Pennsylvania. A. F. Burgess (March 6): During the week of February 19, additional infestations were located in the townships of Scranton and Clifton, both of which are in Lackawanna County.

S P R I N G C A N K E R W O R M (Paleacrita vernata Peck)

Pennsylvania. A. B. Champlain (March 24): Adult, wingless females, very plentiful in wooded areas in Dauphin County. Many seen on tree trunks and twigs.

Ohio. T. H. Parks (March 25): A few wingless females seen on tree trunks between March 10 and 17. Cold weather has greatly retarded emergence.

Illinois. W. P. Flint (March 26): A few males observed flying at Urbana on the night of March 17.

Missouri. L. Haseman (March 27): Indications point to the severest infestation that central Missouri has experienced in years. Female moths began emerging the last 2 days of February. It is estimated that from 7,000 to 8,000 female moths have been taken on a single tree. They are still found in great numbers.

BAGWORM (Thyridopteryx ephemeraeformis Haw.)

Ohio. E. W. Mendenhall (March 20): Cocoons very abundant in Marietta and vicinity. Examination revealed that they have overwintered successfully.

WHITE-MARKED TUSSOCK MOTH (Hameroampa leucostigma A. & S.)

Ohio. E. W. Mendenhall (March 20): Cocoons abundant at Marietta.

OAK

A SCALE INSECT (Kermes sp.)

Mississippi. J. Milton (March 22): Found on a number of oak trees in Hinds County. Damage noticeable but not serious.

PINE

PALES WEEVIL (Hylobius pales Hbst.)

Florida. J. M. Robinson (March 23): Reported as attacking cedar and pines at Crestview on March 18.

NANTUCKET PINE SHOOT MOTH (Rhyacionia frustrana Comst.)

Virginia. L. A. Hetrick (March 21): First emergence of adults in the field on Pinus taeda on March 19 in Isle of Wight County, near Franklin.

A PINE SAWFLY (Neodiprion americanum Leach)

Virginia. L. A. Hetrick (March 21): Overwintering eggs found in the needles of Pinus taeda at scattered points in King and Queen County and in Mathews County. Larvae of this species caused defoliation of pines in these areas in May 1939. (Det. by G. A. Sandhouse.)

PINE NEEDLE SCALE (Chionaspis pinifoliae Fitch)

Utah. G. F. Knowlton (March 22): Numerous on leaves of Austrian pine and white spruce at Logan.

A SCALE (Matsucoccus acalyptus Herbert)

Arizona. B. Eastman (March 11): Found on pinon pine on the Navajo Indian Reservation. (Det. by H. Morrison)

TULIPTREE

TULIPTREE SCALE (Toumeyella liriodendri Gmel.)

Pennsylvania. E. P. Felt (March 22): The scale-eating caterpillar Laetilia coccidivora Comst. was abundant on tuliptrees infested by this scale, as shown by material collected recently in the Philadelphia area.

WILLOW

POPLAR AND WILLOW BORER (Sternochetus lapathi L.)

Michigan. E. I. McDaniel (March 21): Found on March 18 at Grand Rapids.

A PSYLLID (Psylla parallela Crawford.)

Oregon. R. L. Post (March 14): Series of more than 40 specimens collected from pussy willow at Salem on February 19. This is apparently the first time this species has been collected in Oregon. (Det. by L. D. Tuthill.)

I N S E C T S A F F E C T I N G G R E E N H O U S E

A N D O R N A M E N T A L P L A N T S

COTTONY-CUSHION SCALE (Icerya purchasi Mask.)

Arizona. C. D. Lebert (March 15): Since February this scale has been building up on ornamentals in the Phoenix area. Several heavy infestations were observed on plantings of pittosporum, but no damage has been observed. No parasites present.

COTTONY MAPLE SCALE (Pulvinaria vitis L.)

Idaho. F. H. Shirck. (March 9): Branches of Spiraea vanhouttei received from Parma infested with what is possibly this species.

A PYRRHOCORID (Euryophthalmus succinctus L.)

Arizona. C. D. Lebert (February 26): This bordered plant bug was observed to be numerous on the flowering buds of the native cacti Coryphantha spp. on sunny hillsides in the Dragoon Mountains, Cochise County, southeastern Arizona. Adults and nymphs observed. None found in nearby deciduous-fruit orchards.

CITRUS MEALYBUG (Pseudococcus citri Risso)

Delaware. M. D. Leonard (March 23): The parasite which was cited as attacking Coleus at Wilmington on page 24 of the Insect Pest Survey Bulletin, March 1 1940, has been determined as Leptomastidea abnormis Gir. (Det. by A.B. Gahan.)

Nebraska. M. H. Swenk (March 15): Reported as infesting house plants in Lancaster County on February 26.

A PSYLLID (Paurocephala ilicis Ashm.)

Texas. R. K. Fletcher (March 11): Leaf galls from evergreen yaupon (Ilex vomitoria) containing psyllid nymphs received on March 8. (Det. by P. W. Oman.)

APHIDS (Aphidae)

Delaware. M. D. Leonard (March 15): Continued heavy infestations of potted nasturtiums by Myzus persicae Sulz., along with Aphis rumicis L., which they were gradually displacing, have taken place in a greenhouse at Wilmington. Also found on cabbage. For the last 2 weeks Rhopalosiphum rufomaculatum Wilson has been building up on a number of young, potted chrysanthemum plants in this greenhouse, until a very fair infestation is present with a good scattering of alates.

ARBORVITAE

AN APHID (Dilachnus thujaefilina Del G.)

Arizona. C. D. Lebert (March 10): Observed in the Phoenix area on arborvitae.

CAMELLIA

CAMELLIA SCALE (Lepidosaphes camelliae Hoke)

Mississippi. C. Lyle (March 22): Specimens on Camellia japonica sent in from Lowndes County on March 4.

CAPE-JASMINE

CITRUS WHITEFLY (Dialeurodes citri Ashm.)

Mississippi. J. Milton (March 22): Some damage caused to Cape-jasmine in Hinds and Scott Counties.

CHRYSANTHEMUM

CHRYSANTHEMUM APHID (Macrosiphoniella sanborni Gill.)

Delaware. M. D. Leonard (March 15): Many young potted chrysanthemum plants in a greenhouse at Wilmington, which seemed only slightly infested in February, now have a considerable population of this aphid, as well as of R. rufomaculatum.

Arizona. C. D. Lebert (March 10): Numerous on chrysanthemum in the Phoenix area.

DOGWOOD

DOGWOOD CLUB GALL (Mycodiplosis alternata Felt)

South Carolina. E. P. Felt (March 22): Reported as common and causing appreciable injury in the Clemson section.

Georgia. M. Murphey, Jr. (March 12): Galls from dogwood, and larvae found in galls. (Det. by C. T. Greene.)

EASTER LILY

BULB MITE (Rhizoglyphus hyacinthi Bdv.)

Michigan. E. I. McDaniel (March 21): Found in Easter lily at Royal Oak and Jackson. Plants retarded in growth and fail to produce more than two or three flowers. In many instances the stem has been hollowed out and is a mass of mites.

EUONYMUS

EUONYMUS SCALE (Chionaspis euonymi Comst.)

Mississippi. C. Lyle (March 22): Specimens on euonymus received from Lee County. Damage reported from Hinds County and the northeastern part of the State.

FERN

FERN SCALE (Pinnaspis aspidistrae Sign.)

Michigan. E. I. McDaniel (March 14): Found on Boston fern in a house at Bad Axe.

GREENHOUSE WHITEFLY (Trialeurodes vaporariorum Westw.)

Utah. G. F. Knowlton (March 22): Found damaging ferns recently purchased.

GLADIOLUS

CORN EAR WORM (Heliothis armigera Hbn.)

Florida. J. R. Watson (March 21): Some trouble reported from Lee County of the corn ear worm mining the stalks of gladiolus.

GLADIOLUS THRIPS (Taeniothrips simplex Morison)

Florida. J. R. Watson (March 21): Rather prevalent in Lee County.

IVY

GREENHOUSE SCALE (Aspidiotus nerii Bouche)

Michigan. E. I. McDaniel (March 21): Found on English ivy in a house at Plainwell on March 14.

AN APHID (Aphis sp.)

Mississippi. C. Lyle (March 22): Specimens received from Hinds County on March 20, with statement that they were feeding on ivy. It is believed that this aphid is different from any recorded species for this host plant, and it has not been definitely identified.

OLEANDER

OLEANDER SCALE (Aspidiotus hederæ Vallot)

Mississippi. J. Milton (March 22): Light infestation reported on oleander plants kept in dwellings during the winter in the Jackson district.

RHODODENDRON

AZALEA SCALE (Triococcus azaleæ Comst.)

Pennsylvania. E. P. Felt (March 22): Locally abundant on rhododendrons in the Philadelphia area.

A RHODODENDRON MIDGE (Giardomyia rhododendri Felt)

Pennsylvania. E. P. Felt (March 22): Damage reported from Bryn Mawr. This insect caused considerable damage last year.

ROSE

ROSE APHID (Macrosiphum rosæ L.)

Arizona. C. D. Lebert (March 10): Observed to be numerous on the new growth and young buds of rosebushes in the Phoenix area.

INSECTS ATTACKING MAN AND
DOMESTIC ANIMALS

MAN

MOSQUITOES (*Culicinae*)

Louisiana. C. O. Eddy (March 26): Observed to be abundant around University Lake at University.

Utah. G. F. Knowlton (March 22): A few mosquitoes, *Aedes* sp., have been attacking man at Hooper and Logan the last few days.

EYE GNATS (*Hippelates* spp.)

California. E. W. Jayne (February): Very few gnats out, owing to cool weather, rain, and wind, and a poor catch was made during the month in the Coachella Valley.

AMERICAN DOG TICK (*Dermacentor variabilis* Say)

Maryland. F. C. Bishopp (April 1): The first appearance of this tick this season is recorded with receipt of an adult male from Laurel on March 30. It was found crawling on a man's neck. (Det. by Helen L. Trembley.)

TROPICAL RAT MITE (*Liponyssus bacoti* Hirst)

Alabama. J. M. Robinson (March 19): Reported as attacking human beings at Auburn and Doanoke.

Texas. E. W. Leake (March 21): Reports of infestations and inquiries as to control received from two houses in Dallas. Houses were known to be infested by one or more rats, and the mites were annoying to the occupants of the premises.

BOXELDER BUG (*Leptocoris trivittatus* Say)

Pennsylvania. T. L. Guyton (March 25): Very numerous about and in a house at Elizabethtown.

District of Columbia. F. C. Bishopp (March 28): Reported during the last few days by a few residents in Washington and nearby Virginia. Found around the foundations of houses for the most part, only a few entering living quarters.

Virginia. S. B. Fenne (March 22): Found entering houses in Greensville County.

Indiana. J. J. Davis (March 25): Many reports received from throughout the State that this insect is becoming active and annoying in homes.

Michigan. E. I. McDaniel (March 21): Reported in houses at Waterford on March 14, and at Detroit.

Nebraska. M. H. Swenk (March 15): Many complaints of annoyance in and around houses received from Douglas, Saunders, Lancaster, Thayer, and Garden Counties.

Montana. H. B. Hills (March 18): Pest in buildings at Miles City.

Utah. G. F. Knowlton (March 21): Reported as extremely abundant and annoying in many buildings at Logan, Ogden, and Salt Lake City.

Washington. E. W. Jones (March 23): Very abundant this month, and becoming a house pest in Walla Walla and vicinity.

CATTLE

COMMON CATTLE GRUB (Hypoderma lineatum DeVill.)

Texas. C. L. Smith and W. G. Bruce (March 21): Activity by adults, attacking cattle, observed on March 11 and today in the vicinity of Dallas.

HORN FLY (Haematobia irritans L.)

Texas. W. G. Bruce (March 21): One horn fly emerged from an overwintering cage at Dallas on March 1. This was the first one observed in 1940. First observance of horn flies on cattle was on March 12, when about 19 flies were found on 2 cows in the laboratory pasture, 1 pair of flies mating. On the same date about 24 were found in the cattle fly trap to which the cattle had access. First oviposition noted in the laboratory pasture on March 14. Infestations on March 18 averaged 10 per head on 5 head of cattle on the laboratory premises and 3 per head on 40 head of cattle located 6 miles southeast of the laboratory.

STABLEFLY (Stomoxys calcitrans L.)

Florida. S. W. Simmons (March 23): A few adults were seen in nature on March 10 at Panama City, after having been absent since January 19.

Texas. W. G. Bruce (March 21): Reported as attacking livestock in the vicinity of Dallas since about the middle of February. They were neither numerous nor troublesome.

POULTRY

DEPLUMING MITE (Oenidoseptes gallinae Baill.)

Nebraska. M. H. Swenk (March 2): Reported on chickens in Sheridan County.

SHEEP

NOSE BOTFLY (Gasterophilus haemorrhoidalis L.)

Utah. G. F. Knowlton and R. E. Nye (March 4): Reported that a valuable sheep at Logan was so badly infested that it had to be killed.

HOUSEHOLD AND STORED-PRODUCTS INSECTS

TERMITES (Isoptera)

District of Columbia. R. A. St. George (March 22): Swarms of Peticulitermes flavipes Kollar are occurring in buildings in Washington and vicinity at frequent intervals. Large numbers observed in heated basements during the last week.

Virginia. S. B. Fenno (March 22): First report for 1940 of swarming of subterranean termites in Augusta County on March 11. Considerable damage to house timbers.

North Carolina. B. H. Wilford (March 5): The first flight of R. flavipes observed this year occurred on March 4 in the basement of a residence in Asheville.

Alabama. J. M. Robinson (March 23): Sufficiently active at Auburn to require control measures.

Mississippi. C. Lyle (March 22): Reports of infestations received from Clarke, Copiah, Forrest, Hinds, Oktibbeha, and Yazoo Counties. Report received of serious damage to a school building in Scott County.

Indiana. J. J. Davis (March 25): Swarming reported from many localities in the State.

Michigan. E. I. McDaniel (March 21): Found coming out inside a house at Newaygo on March 14. First record for the year.

Missouri. L. Haseman (March 27): In central Missouri early swarming has been reported by a number of home owners, despite the fact that winter still prevails here.

Nebraska. H. H. Swenk (March 15): Specimens of R. flavipes sent in from Webster County on March 4, with the report that they had been taken from the ground a short distance south of a house.

Texas. R. K. Fletcher (March 26): House found badly infested on March 13 in Waller County.

Montana. H. B. Mills (March 18): Reported that P. tibialis Banks is eating only oak, not fir, flooring in a house at Havre, Hill County, north-central Montana. Adult winged forms sent in for examination. First record from this far north in Montana.

California. H. J. Ryan (March 19): Damp-wood termite (Termopsis angusticollis Hagen) observed at Glendale, Los Angeles County, on February 29, while Kaloterms minor Hagen was found attacking wood at Los Angeles on February 10. (Det. by V. E. Williams.)

ANTS (Formicidae)

Mississippi. C. Lyle (March 22): Specimens of the fire ant (Solenopsis xyloni McCook) received from Marshall County, and reports of annoyance from Simpson County. The Argentine ant (Iridomyrmex humilis Mayr) has been reported as causing annoyance in houses in parts of Winston and Forrest Counties. Control campaigns in progress, or just completed, in several localities.

Missouri. A. C. Burrill (March 22): Prenolepis imparis Say observed at Elmerino, Jefferson County, on March 19, the first ants seen above ground this spring. Usually ants are present in January or February.

Nebraska. M. H. Swenk (March 15): Numerous complaints of the basement ant (Lasius interjectus Mayr), as infesting basements of buildings, received from residents in Lancaster County during the period February 20 to March 15.

COCKROACHES (Blattidae)

Alabama. J. M. Robinson (March 23): The brown-banded cockroach (Supella supellectilium Serv.) was found at Auburn on March 7.

Mississippi. C. Lyle (March 22): Specimens of the German cockroach (Blattella germanica L.) received from Jackson County on March 14. Reports of infestations received from Hinds and Tate Counties.

Nebraska. M. H. Swenk (March 15): The oriental cockroach (Blatta orientalis L.) was reported as infesting a house in Gage County on March 4.

Montana. H. B. Mills (March): B. orientalis was found infesting a building at Helena.

POWDER-POST BEETLES (Lyctus spp.)

Alabama. J. M. Robinson (March 23): Reported as damaging wood at Eufaula on March 19.

Indiana. J. J. Davis (March 25): Reported from many localities and a serious problem throughout the State.

Nebraska. M. H. Swenk (March 15): L. planicollis Lec. reported as damaging oak floors in a house in Saline County on March 9.

CARPET BEETLES (Dermestidae)

Michigan. E. I. McDaniel (March 21): Adults collected on a basement window at Dearborn on March 19. The black carpet beetle (Attagenus piceus Oliv.) was found at Lansing on March 14.

AN ANOBIID (Xyletinus peltatus Harr.)

Mississippi. C. Lyle (March 22): Injury to foundation timbers of buildings was reported from Adams and Leflore Counties; probably caused by this species.

WEEVILS (Curculionidae)

Alabama. J. M. Robinson (March 23): The rice weevil (Sitophilus oryza L.) has been abundant at Auburn.

Mississippi. C. Lyle (March 22): A live weevil belonging to the genus Ceratopus was taken from a bunch of bananas in Jefferson Davis County and sent in on February 9. (Det. by L. L. Buchanan.)

Montana. H. B. Mills (March 21): About 25 bushels of wheat in a bin at Helstone, Musselshell County, were almost completely infested with the granary weevil, S. granarius L.

TISSUE PAPER BUG (Thylognathus contractus Motsch.)

Massachusetts. A. I. Bourne (March 9): A wingless female was discovered a few days ago at Amherst. This is, the reporter believes, the first time this species has been found here.

ANGOUNOIS GRAIN MOTH (Sitotroga cerealella Oliv.)

Alabama. J. M. Robinson (March 23): Abundant at Auburn.

Indiana. J. J. Davis (March 25): Unusually abundant last fall in the southern half of Indiana, owing apparently to mild weather and the large carry-over of grain. However, the extended, severe cold of January has apparently been responsible for a high mortality, and all material examined from outdoor cribs has shown 100-percent mortality.

A BLUEBOTTLE FLY (Calliphora erythrocephala Meig.)

Georgia. T. L. Bissell (March 25): Common at Experiment, central Georgia, since March 19.

CLUSTER FLY (Pollenia rudis F.)

Washington. M. H. Hatch (March 20): Found infesting a house in Seattle. (Det. by T. Kincaid.)

CORRECTION:

Georgia. T. L. Bissell (March 25): On pages 1, 3, 13, 14, and 18 of the Insect Pest Survey Bulletin for March 1, 1940, it is stated that the minimum temperatures for January and February 1940, at Experiment, central Georgia, were -15.6° and -4 4° F., respectively. These figures represent the departures from normal, or average. The minimum temperatures for January and February were 4° and 18°, respectively.

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THE MORE IMPORTANT RECORDS FOR APRIL

The long-winged grasshopper began hatching in parts of New Mexico on April 11. By the third week in the month approximately 5 percent had hatched. Other crop-infesting species in the Oklahoma-Texas Panhandle began hatching on April 14 and by the end of the month were 15 percent hatched. In Colorado Melanoplus bivittatus and M. mexicanus began hatching on April 29. In Kansas Aeoloplus turnbullii and Aulocara elliotti began hatching on April 25. In the more northern States no hatching had taken place the first of May.

White grub beetles started emerging in the lower part of the Mississippi Valley early in the month. Grub counts indicate that there will be a heavy infestation in parts of Kentucky.

Wireworms, Ludius pruininus noxius Hyslop, damaged early planted potatoes in southwestern Idaho, and severe damage to sugar beets was reported from Ventura County, Calif.

Retarded spring weather has held back chinch bug emergence in the East Central States, but the insects in hibernating quarters have apparently passed the winter in fairly good condition. In the West Central States these insects are more abundant than usual.

Kansas and Nebraska are both suffering from attack of false wireworms to small grain.

Alfalfa weevil was damaging alfalfa in Utah and Nevada and in parts of California.

Pea aphid prevalent on alfalfa in many fields in Utah and Nevada, and on peas and vetch in Oregon. Some damage being reported.

Sugarcane borer suffered very high mortality in Louisiana sugarcane-growing sections.

Codling moth apparently passed the winter with low mortality in the Middle Atlantic States. Moth emergence was observed during the last week in April in Georgia. The population of overwintered larvae is apparently larger than usual in the East Central States.

Fruit aphids in general are subnormal in numbers throughout the Middle Atlantic, South Atlantic, and East Central States.

European red mite is abnormally abundant in New York and New Jersey.

Plum curculio began emerging in the Fort Valley section of Georgia during the last week in March. By the first week in April it was evident that the population was larger than usual. This insect, however, got a late start this year and most varieties of peaches will escape a second brood.

Oriental fruit moth is also very late in emerging in the Middle Atlantic and South Atlantic States.

The white peach scale is more abundant than usual in central Georgia.

During the third week in March pear psylla was observed ovipositing in the Spokane Valley of Washington and Idaho.

The pear thrips was causing considerable loss to the set of prune fruit in the Willamette and Umpqua Valleys of Oregon.

The green citrus aphid caused considerable damage to the new growth on citrus trees in Florida. The introduced Chinese ladybeetle survived the very unfavorable winter.

The papaya fruitfly survived winter temperatures which killed many of the plants to the ground in Florida.

During the latter half of April seed-corn maggot did considerable damage to cucumber seedlings in South Carolina. Beans were reported as damaged by this insect in Mississippi.

During the second week in April Mexican bean beetle put in its appearance in Florida, and during the third and fourth weeks it was reported from South Carolina, Alabama, and Georgia.

During the first week in April the harlequin bug was reported as numerous in the South Atlantic States and Gulf Region.

But little activity of the boll weevil was reported during the month in the eastern Cotton Belt.

Cankerworms are appearing in rather large numbers in the East Central States, infestations being quite general, westward to Iowa, Minnesota, and thence southward to Texas. Heavy defoliation was taking place in the Dallas city limits in Texas during the third week in the month.

The forest tent caterpillar is unusually numerous in the South Atlantic and Gulf States, and was reported as occurring in considerable numbers in southeastern New York.

Heavy infestations of human beings by the tropical rat mite were reported from widely scattered localities from the District of Columbia to Texas, and northward to Wisconsin.

GENERAL FEEDERS

GRASSHOPPERS (Acrididae)

General. R. L. Shotwell (May 1): Dissosteira longipennis Thos. began hatching April 11 in the Dunlap area, New Mexico, and on April 24 were 90-percent hatched in this area. Populations averaged 500 per square yard and little migration from the original egg beds had occurred at this date. The average hatch for New Mexico on April 23 was estimated as being less than 5 percent. Melanoplus mexicanus Sauss. and other crop grasshoppers began hatching in the Oklahoma-Texas Panhandle area by April 14. On April 28, about 15 percent had hatched, with populations averaging 15 per square yard in the heavier infested areas. About 80 percent of the grasshoppers hatched in this area proved to be M. mexicanus. In Colorado, M. bivittatus Say and M. mexicanus were reported as beginning to hatch in Morgan County on April 29. In western Kansas, Aeoloplus turnbullii Thos. and Aulocara elliotti Thos. reported as beginning to hatch in Meade County on April 25. A. turnbullii formed 90 percent of the population in the hatch so far. As to the rest of the area--Nebraska, North Dakota, South Dakota, Minnesota, Montana, and Wyoming--no hatching has taken place as yet. Melanoplus confusus Scudd. was noticed to be in the first and second instars on the 21st of April in Beadle County, S. Dak. Spring egg surveys in eastern South Dakota have shown severe infestations of Melanoplus differentialis Thos. and M. bivittatus along fence rows and roadsides at the ratio of 60 percent M. differentialis and 40 percent M. bivittatus. The eggs of M. differentialis were still in the coagulated stage of development, which will not permit hatching before June 1. M. bivittatus will not hatch before May 15. In north-central Montana, a cross section egg survey of Hill County was made April 27. The results, as to the numbers of pods, checked with the fall egg survey. The writer has never before experienced such a uniform, high count of egg pods for an entire county. They are all in good shape and are in every stubble field examined. In some adjacent rangeland used for pasture, egg pods were found in wind-blown hummocks around the sagebrush. On old reverted land, clumps of grama grass sod averaged 0.5 pods per clump. Most of the M. mexicanus eggs are in the eye spot or early segmented stages. This precludes any hatching before May 15.

Florida. J. R. Watson (April 26): The lubberly locust (Romalea microptera Beauv.) began hatching around Gainesville, Alachua County, and in Clay County on March 31, 2 weeks later than last year.

Idaho. J. R. Douglass (April 18): Grasshoppers are hatching in the Snake River plains of southern Idaho.

Utah. G. F. Knowlton (April): On April 8 hatching was reported in home lots at Delta, Millard County. Reportedly abundant. First-instar nymphs brought in on April 17, collected in agricultural areas at Petersboro, Cache County, and southward to Kaysville. Elliott's grasshopper (Aulocara ellioti Thos.) is hatching out on Levan Ridge, south of Nephi, Juab County. Melanoplus sp. found in the first instar in fields at Payson, Utah County, on April 17, and on foothills above Salt Lake City, Salt Lake County, and in alfalfa on Bountiful Bench and at Utah Hot Springs on April 18. On April 25 approximately 40 percent of Hippiscus corallipes Hald., observed in Tooele, Juab, and Millard Counties, were winged. A few winged Trimerotropis spp. were observed in Millard and Tooele Counties. Melanoplus sp. was hatching around fence rows in Millard County, at Delta, Fillmore, Holden, and Meadow. These localities are in central Utah, from the center of the State, northward to the border.

Nevada. G. G. Schweis (April 19): M. occidentalis Thos. reported as hatching in Nye County.

MORMON CRICKET (Anabrus simplex Hald.)

Nevada. G. G. Schweis (April 19): Reports received almost daily of hatching in many of the infested counties.

EUROPEAN EARWIG (Forficula auricularia L.)

Washington. K. E. Gibson (April 22): A number have been noted at Walla Walla.

Oregon. B. G. Thompson (April 16): More adults present in the northwestern section of Corvallis than ever before.

CUTWORMS (Noctuidae)

Alabama. J. M. Robinson (April 17): Observed on Austrian peas at Dadeville today.

Georgia. T. L. Bissell (April 24): On April 18 a number of small cutworms, possibly Prodenia ornithogalli Guen., were found feeding on the leaves of young corn at Experiment, central Georgia. Other cutworms, apparently Feltia malefida Guen., have destroyed cabbage plants at Experiment.

Mississippi. C. Lyle and assistants (April 23): Injury to small plants reported from Attala County and from the western part of the State.

Tennessee. G. M. Bentley (April 1): Reported as attacking truck crops at Memphis, Shelby County. Infestation moderate.

Missouri. L. Haseman (April 24): Recent observations indicate that throughout central Missouri there is a goodly carry-over of cutworms from one-third to one-half grown.

Kansas. H. R. Bryson (April 25): Cutworms, especially the army cutworm (Chorizagrotis auxiliaris Grote), extremely scarce.

Oklahoma. C. F. Stiles (April 2): Cutworms of undetermined species reported as doing some damage to alfalfa in the vicinity of Chickasha.

F. A. Fenton (April 27): Reported from Renfrow and Piedmont.

Texas. R. K. Fletcher (April 22): Severe damage caused to wheat in some field in Potter and Randall Counties on April 3.

Arizona. C. D. Lebert (April 15): Several species have been feeding on field, truck, and ornamental plants in the Salt River Valley, in southern Arizona since April 1. The predominant species are the greasy cutworm (Agrotis ypsilon Rott.) and the variegated cutworm (Lycophotia margaritosa Haw.). A dark species resembling the western armyworm has been doing lots of damage to rye lawns and flower beds at Holbrook, in northern Arizona.

Utah. G. F. Knowlton (April): Specimens of what is probably the army cutworm collected near Beaver, southwest of central Utah, on March 27. They were seriously damaging wheat. (Det. tentatively by C. Heinrich.) On April 16 serious injury by cutworms reported to alfalfa, dry-farm wheat, and 2,000 acres of range in Box Elder County. Alfalfa damaged at Kaneshville, Weber County. Control measures were necessitated in the Beaver area by April 20, to stop injury to alfalfa. On April 24 alfalfa and wheat in Tooele and other parts of the county were damaged. Wheat reported as damaged at McCormick, Millard County, on April 25, but by this time the army-cutworm injury to wheat in the Beaver area was much less than it was 2 weeks ago. On April 26 a heavy infestation was reported as destroying 5 acres of sweetclover at Monroe, Sevier County. A few other outbreaks in the county were reported.

Washington. R. S. Lohman (April 22): Climbing cutworms noted as feeding on the hearts of cabbage at Walla Walla.

MAY BEETLES (Phyllophaga spp.)

Mississippi. C. Lyle and assistants (April 23): Adults of undetermined species were feeding on rose in Hinds County. The first specimen was observed in Tate County on April 16. Adults of P. tristis F. were causing injury to rose in Hancock County early in April.

E. W. Dunnan (April 2): Six adults seen on window screens on the night of March 31 in Leland, Washington County. These were the first observed this season.

Ohio. T. H. Parks (April 25): White grubs very abundant in bluegrass sod at Columbus.

Kentucky. W. A. Price (April 22): A fairly heavy flight is expected early in May in the inner Bluegrass region of Kentucky. Counts made in bluegrass sod in Fayette County show that adults of P. hirticula Knoch are present in the soil at the rate of about 30,000 beetles per acre. Considerable grub damage to sod expected in 1940.

Tennessee. G. M. Bentley (April 15): Two species reported at Jasper, Marion County, and at Sweetwater, Monroe County. No damage.

Kansas. H. R. Bryson (April 25): White grubs exceptionally abundant in lawns and gardens. Adults at the surface of the soil, but the air temperatures have been too low to stimulate a flight.

A SCARABAEID (Cyclocephala immaculata Oliv.)

Kentucky. W. A. Price (April 22): Spring diggings in the vicinity of Lexington show considerable winter mortality of larvae. In one area where the larvae had overwintered at an average depth of only 4 inches, approximately 40 percent were killed.

A FLOWER BEETLE (Euphoria sepulchralis F.)

Florida. J. R. Watson (April 26): Unusually abundant last month, attacking not only roses but also mangoes and shrubbery in the Miami section, and corn in Arcadia.

WIREWORMS (Elateridae)

New York. N. Y. State Coll. Agr. News Letter (April 22): Injury from both corn and wheat wireworms observed this week on tomatoes in a plant house in Niagara County, western New York. The very small wheat wireworms were going into the stems of the seedlings and transplants, causing injury.

Florida. J. R. Watson (April 26): Reported as injurious to tobacco in Baker County.

Idaho. F. H. Shirck (April 15): Larvae of Ludius pruininus noxius Hyslop found infesting seed pieces of early planted potatoes at Homedale, in the newly established Owyhee irrigation project, in southwestern Idaho. This land was covered with sagebrush until 1937. Surveys in 1938, 1939, and 1940 have shown that the populations of these dry-land wireworms have not decreased significantly during 2 years of irrigation.

California. M. W. Stone (March 29): A large number of sugar-beet plantings in Ventura County being severely damaged by the sugar-beet wireworm (Limonijs californicus Mann.). Feeding on the newly formed roots continues, owing to the low soil temperatures prevailing near the surface. (April 17): Damage observed in many sugar-beet fields of Ventura County. Over 10 acres of a 60-acre field of beets near Saticoy plowed under, as only a few plants remained. Siftings in this field on April 10 showed from 5 to 27 L. californicus per 3 feet of row, and an average of 4 per foot of row.

BUGS (Hemiptera)

Arizona. W. A. Stevenson (April 13): Sweeping records made during the week in Pima County show a much higher population of Lygus spp. and Chlorochroa sayi Stal than at any time during April 1939. A maximum of 76 Lygus per sweep collected in alfalfa, whereas in 1939 a maximum of only 9 was collected. A maximum of 15 C. sayi collected per 100 sweeps on Sphaeralcea, whereas in 1939 only 1 specimen was taken in April. The very mild winter is undoubtedly responsible for the comparatively high populations.

Utah. G. F. Knowlton (April 18): L. elisus Van D. and L. hesperus Knight were very abundant in alfalfa in Weber County, northern Utah.

TARNISHED PLANT BUG (Lygus pratensis oblineatus Say)

Missouri. L. Haseman (April 24): During the recent warm days in central Missouri there have been many insects visiting the early fruit bloom. These bugs have been abundant.

FALSE CHINCH BUG (Nysius ericae Schill.)

Arizona. C. D. Lebert (April 10): Several infestations observed at Phoenix. They are coming out of weedy areas to cover crops and migrating around and in houses by the thousand, causing considerable annoyance and some damage to ornamentals. Apparently not so general, however, as last season.

GARDEN CENTIPEDE (Scutigorella immaculata Newp.)

Oregon. H. E. Morrison (April 16): Found attacking vetch, oats, and clover in the Willamette Valley. Abundance normal.

CEREAL AND FORAGE - CROP INSECTS

WHEAT AND OTHER SMALL GRAINS

CHINCH BUG (Blissus leucopterus Say)

Indiana. C. Benton (April 25): Counts in 20 samples of Andropogon furcatus and A. scoparius from 3 localities in Tippecanoe County on March 29 and from 1 locality in Benton County on March 26 show a mortality of approximately 27 percent. A similar series of samples taken on January 31 from the identical localities showed the same mortality. The weather has continued cold, and frequent examinations of bunchgrass hibernation quarters, check of small grainfields in known heavily infested areas, and operation of migration screens show no migration from winter quarters in the vicinity of La Fayette.

Illinois. W. P. Flint (April 17): Examinations in winter quarters showed more reduction than usual in grassy areas, owing to the feeding of predators. Bugs undisturbed by predators have come through the winter in excellent condition. No movement out of cover.

Iowa. H. E. Jaques (April 18): Apparently unusually abundant throughout the immediate vicinity of Mt. Pleasant, as well as over much of the southern part of Iowa.

Missouri. L. Haseman (April 24): Cool weather has been retarding the normal spring flight throughout most of the State. Early in the month some flights occurred on warm days in northwestern and west-central Missouri. In central Missouri chinch bugs have been taken on insect screens on only 1 day during the last week. With the relatively small winter mortality, a heavy movement into small grains is expected with the first really prolonged warm spell.

Nebraska. M. H. Swenk (April 15): Enough survived the winter in southeastern Nebraska to constitute a serious menace to grain crops in the event of a dry spring. An analysis of winter mortality in southeastern Nebraska showed that, although the general mortality is higher than normal, the number of surviving bugs is very great, owing to the large population that went into hibernation. Greatly increased barley acreage in the infested area, together with the shift toward sorghums, are additional factors toward the development of a serious outbreak. Samples of cover in which the bugs were wintering, collected during the last 2 weeks in March in the southeastern corner of the State, indicated that the general mortality over the area was 36.7 percent. The chief cover examined consisted of the big bluestem and little bluestem grass clumps. The bugs survived considerably better in the little bluestem, where the mortality as a whole was only 17.9 percent, than in the big bluestem, where it was 43.1 percent.

Kansas. H. R. Bryson (April 25): More abundant than usual in almost every locality in the eastern half of the State. Particularly true where the fall surveys revealed a large number of bugs going into hibernation. While no definite figures are available, indications are that winter mortality was light. Observed mating at Manhattan on April 20. An outbreak is almost certain if favorable weather continues.

HESSIAN FLY (Phytophaga destructor Say)

Ohio. T. H. Parks (April 25): Very scarce in central Ohio, and no eggs could be found on wheat near Columbus on April 24.

Illinois. D. W. La Hue (April 25): Material collected from a heavily infested field of volunteer wheat near Chrisman, Edgar County, on April 23 showed 70 live pupated larvae, 3 dead larvae, 21 pupae, and 4 empty puparia out of 100 puparia examined. In a field of fall-sown wheat nearby, 22 percent of the fly forms were larvae in the rice-grain stage and 78 percent were pupated larvae.

Kansas. H. R. Bryson (April 25): Reported as scarce in the State.

FALSE WIREWORMS (Eleodes spp.)

Nebraska. M. H. Swenk (April 15): The plains false wireworm (E. opaca Say) was reported as doing considerable damage to wheat in Hitchcock and Hayes Counties on April 2 and 6.

Kansas. H. R. Bryson (April 25): The dry season of 1939 again favored false wireworms. Two reports received that the larvae, where abundant, attack the underground parts of wheat plants. This type of injury is not very common. A considerable amount of the wheat that did not germinate last fall was injured before the larvae went down into the soil to spend the winter.

SEED-CORN BEETLE (Agonoderus lecontei Chaud.)

Nebraska. M. H. Swenk (April 15): Specimens, taken from a wheatfield in which they were reported as rather abundant, were received from Richardson County southeastern Nebraska, on March 19. Found in great swarms along the roads around Lincoln, Lancaster County, on April 10 and 14.

WHEAT BROWN MITE (Tetranychina tritici Ewing)

Oklahoma. F. A. Fenton (April 27): The mite continued to be injurious to wheat in the southwestern part of the State. However, rains later in the month tended to allow some of the wheat, which was not too seriously damaged, to outgrow the injury. The mite is now disappearing.

CORN

CORN EAR WORM (Heliothis armigera Hbn.)

Texas. P. T. Rihard (April 22): Observed on corn in Hidalgo County on March 30.

R. L. McGarr (April 12): Collected from flax at Tivoli, Refugio County, and at Sinton, San Patricio County, on April 7. (Det. by C. Heinrich.)

EUROPEAN CORN BORER (Pyrausta nubilalis Hbn.)

New York. N. Y. State Coll. Agr. News Letter (April 22): Borers are showing activity and clearing out tunnels preparatory to pupation in Columbia County, eastern New York.

Virginia. H. G. Walker and L. D. Anderson (April 26): About 30 overwintering borers dissected out of cornstalks in Princess Anne County on April 2. Of this number, 1 had pupated and 3 were in the prepupal stage.

CORN FLEA BEETLE (Chaetocnema pulicaria Melsh.)

Georgia. T. L. Bissell (April 24): A few flea beetles, possibly this species, are feeding on corn at Experiment, central Georgia.

Mississippi. C. Lyle (April 23): Specimens sent in from Monroe County early in April, with the information that considerable damage had been done.

ALFALFA AND CLOVER

ALFALFA WEEVIL (Hypera postica Gyll.)

Utah. G. F. Knowlton (April 12): Small larvae and adults present on alfalfa in northern Utah.

(April 26): Injury conspicuous on young alfalfa examined at the mouth of Salina Canyon.

Nevada. L. G. Jones (April 15): Very abundant in the Minden area. In many fields it was not difficult to find one or two adults per square foot. Present in the egg, larval, and adult stages.

G. G. Schweis (April 19): Adults very prevalent in some sections in western Nevada, and egg laying taking place to a limited extent.

California. A. E. Michelbacher (April 20): In one very localized area in the San Joaquin Valley, just south of Tracy, considerable damage was caused in about 6 fields. In this area on April 5 the number of larvae collected per 100 sweeps ranged from 600 to 5,060. The larval population in the region had been high for over a month, for as early as March 3 the larval count ranged from 470 to 2,356. In parts of 1 or 2 fields nearly all the foliage was eaten. Outside this small area no damage was done and on April 4 a field was seldom found where the larval count exceeded 100 per 100 sweeps. In the San Joaquin Valley on April 16 the number of larvae collected per 100 sweeps ranged from 3 to 780. During the harvest of the first crop there was a period of warm weather, which resulted in considerable cultural kill. At Pleasanton and the region adjacent to the San Francisco Bay, no damage occurred. In the San Francisco Bay region the larval count for the different fields on April 12 ranged from 2 to 250. Parasitization by Bathyplectes curculionis Thoms., as determined by rearing the parasites from last-stage larvae collected in the field, is as follows: In the San Joaquin Valley on April 5 from 24 to 62 percent for the different fields; and in the area adjacent to the San Francisco Bay on April 2, from 58 to 89 percent. On April 11 a survey of the alfalfa fields south of the known infestation adjacent to the San Francisco Bay was conducted. No weevils collected, but 4 adult Bathyplectes were taken. One of these was taken at Paicines, San Benito County, the southernmost point covered by the survey.

CLOVER LEAF WEEVIL (Hypera punctata F.)

Missouri. L. Hasenan (April 24): Practically no evidence of the early work of the larvae throughout central Missouri.

Utah. G. F. Knowlton (April 18): A few larvae are developing on alfalfa at Utah Hot Springs, Weber County.

Washington. E. J. Newcomer (March 26): Larvae reported as numerous in some alfalfa fields in the Yakima Valley. The mild winter has probably resulted in less mortality than usual.

A WEEVIL (Hypera brunneipennis Boh.)

Arizona. C. D. Lebert (April 15): Since April 1 several larvae have been found south of Tempe, Maricopa County, on clover. Control measures necessary.

PEA APHID (Macrosiphum pisi Kltb.)

Virginia. H. G. Walker and L. D. Anderson (April 26): Very scarce in alfalfa and peafields in the Norfolk area and on the Eastern Shore.

Kansas. H. R. Bryson (April 25): Only a few specimens taken, and decidedly below the average in numbers. Practically none found in alfalfa fields in March.

Utah. G. F. Knowlton (April 4): Second-instar aphids moderately abundant on alfalfa in Weber County. Parasitization of 10 percent and numerous ladybird beetles found in 1 field near Kaneshville. (April 11): Moderately abundant on alfalfa throughout northern Utah, a few having become adult. In a few localities they are abundant, from 40 to 60 being taken in 10 sweeps of the insect net. Damage to alfalfa at Moab has been reported. Some internal parasitization is evident in most of the localities in northern Utah where surveys have been made. (April 12): Damage to alfalfa becoming evident 1 mile south of Layton, 204 and 264 aphids being collected in each 10-sweep sample taken with a standard insect net. Internal parasitization of 3 percent was evident. Some syrphids have laid eggs and ladybird beetles were present. Winged adults collected at Layton and Centerville today. Some second-generation nymphs being produced.

Nevada. L. G. Jones (April 15): Infestation somewhat general in the vicinity of Minden and Carson City, and outbreak numbers reached in from 60 to 75 percent of the fields. Observations made in fields that had been grazed recently, or are in the process of being grazed, and, without exception, the population had been reduced to below damaging numbers. In many fields the peak of infestation had been reached.

Oregon. K. W. Gray (April 17): Winged forms expected to be abundant on peas and vetch around April 20 in the Willamette Valley.

ALFALFA CATERPILLAR (Colias eurytheme Bdv.)

California. A. E. Michelbacher (April 20): Adults rather common in the alfalfa fields as early as April 4, but only occasionally has a larva been taken.

SALT-MARSH CATERPILLAR (Estigmene acrea Drury)

Georgia. T. L. Bissell (April 24): A few full-grown caterpillars found on wild legumes at Experiment.

COWPEAS

COWPEA CURCULIO (Chalcodermus aeneus Boh.)

Georgia. T. L. Bissell (April 26): Emergence from hibernation has started at Experiment. Three were caught on April 24 and 6 today on trap cowpea plants. The earliest record in 1939 was on April 21.

SUGARCANE

SUGARCANE BORER (Diatraea saccharalis F.)

Louisiana. W. A. Douglas (March 25): Results of examinations of rice stubs in 10 representative fields in southern Louisiana showed mortality of 68 per cent, resulting from the unusually cold weather in January. The surviving population in rice stubs is estimated to be less than one-half of that surviving a normal winter in this section.

E. K. Bynum, et al. (April 10): A total of 1,557 10-foot samples of burned cane trash were examined in a number of fields on light and on heavy soil during the last of February and in March. In these examinations a total of 22,974 sugarcane tops and pieces of sugarcane stalks were examined. Based on data obtained, the number of live stages surviving the winter, as compared with survival in 1939, was as follows: In light soil, 8 per acre in 1940 and 93 per acre in 1939; in heavy soil, 6.5 in 1940 and 13.2 in 1939. Based on the examination of 3,710 stubs, the number of borers surviving the winter in stubs was 6.4 per acre, as compared with 17 per acre in 1939, and an average of 28.6 per acre for the period 1935-39. It is readily apparent that this last winter, the coldest in the sugarcane section since 1899, greatly reduced normal borer survival.

A. L. Dugas (April 25): Very slow in making its appearance. The adverse weather conditions during the hibernation period reduced the number of overwintered borers very materially, and, as a result, the damage by first-generation borers is exceptionally light.

SUGARCANE BEETLE (Euethola rugiceps Lec.)

Louisiana. J. W. Ingram and W. E. Haley (April 10): Practically no beetle injury occurred in March, and injury on April 9 was less than 1 percent. Activity at least 2 weeks later than normal, owing to the unusually cool weather during March. Trapping of large numbers of beetles at lights early in April indicates that most of them have emerged.

A. L. Dugas (April 25): Observed on a plantation near Franklin on about April 16. Considerable damage done in nearly 150 acres of sugarcane on this plantation.

F R U I T I N S E C T S

EASTERN TENT CATERPILLAR (Malacosoma americana F.)

- New York. N. Y. State Coll. Agr. News Letter (April 22): No eggs observed in Ulster County but abundant in Dutchess County, both in eastern New York.
- Virginia. C.R. Willey (April): Reported to be about as numerous as usual.
- North Carolina. C. S. Brimley (April 5): First webs of tent caterpillars noted on wild cherry at Raleigh.
- Georgia. T. L. Bissell (April 24): Larvae about mature leaving cherry trees at Experiment.
- Florida. A. H. Madden (March 31): Abundant on wild crabapple and wild cherry in Gadsden County. Larvae about full grown.
- Alabama. J. M. Robinson (April 8): Observed on apples and wild cherry at Tuskegee.
- Mississippi. C. Lyle and assistants (April 23): Colonies observed on wild cherry in the southeastern counties of the State, and on wild cherry and peach in Choctaw and Webster Counties on April 1. Also reported on plum in Holmes County and in the Meridian area. Abundant in southern Mississippi on cherries, plums, and other trees, and have matured.
- Louisiana. L.D. Newsom (April 25): Reported abundant in northwestern Louisiana.

WESTERN TENT CATERPILLAR (Malacosoma pluvialis Dyar)

- Oregon. D. C. Mote and assistants (April 8): Infestations of coast tent caterpillar are occurring only in individual prune, cherry, filbert, and apple orchards in the Willamette Valley. Orchards severely infested in 1939 are lightly infested now. Heaviest infestation observed in a filbert orchard, where nests averaged 3 per tree.

FLATHEADED APPLE TREE BORER (Chrysobothris femorata Oliv.)

- Nebraska. M. H. Swenk (April 15): During the period March 16 to April 15, complaints of damage to apple, elm, ash, and other trees were received from Nemaha, Burt, Johnson, Madison, Hamilton, and Harlan Counties.
- Oklahoma. F. A. Fenton (April 27, 1940): Reported on bush cherry and Japanese flowering quince at Lindsay.

ROUNDHEADED APPLE TREE BORER (Saperda candida F.)

Kentucky. W. A. Price (April 24): On March 30 a number of larvae were reported cut from the trunks of injured apple trees at Pikeville, Pike County. They were widespread throughout the orchard.

FRUIT TREE LEAF BEETLE (Syneta albida Lec.)

Oregon. S. C. Jones (April 17): First adults found at Winston Creek, in the Umpqua Valley, on March 27, and in the Willamette Valley on April 8, when cherries were in full bloom. Beetles at Winston Creek found in prune orchards. They are now beginning to do stem and fruit injury. Peak of emergence reached in the Willamette Valley on April 15.

BUFFALO TREEHOPPER (Ceresa bubalus F.)

New York. N. Y. State Coll. Agr. News Letter (April 22): Reported as damaging two blocks of young apple trees in western New York.

SAN JOSE SCALE (Aspidiotus perniciosus Comst.)

New York. N. Y. State Coll. Agr. News Letter (April 15): From 5 to 10 percent mortality reported in Hudson Valley. (April 22): Prevalent in some orchards in Wayne County.

Mississippi. C. Lyle and assistants (April 23): Abundant in southwestern Mississippi on unsprayed fruit trees. Light infestations found in Claiborne and Hinds Counties.

Minnesota. A. G. Ruggles (April 19): Found overwintering in an isolated infested tree near St. Paul.

EUROPEAN FRUIT LECANIUM (Lecanium corni Bouche)

Arizona. C.D. Lebert (April 15): Medium infestation on mulberry trees, which were treated 4 years ago, at Phoenix.

Texas. R. K. Fletcher (April 3): Plum trees in Wood County infested by what is probably this species.

SCURFY SCALE (Chionaspis furfura Fitch)

New York. N. Y. State Coll. Agr. News Letter (April 22): Infestation still serious in many orchards in the southern part of Columbia County. Observed as far north as 2 miles south of Hudson.

APPLE

CODLING MOTH (Carpocapsa pomonella L.)

New York. N. Y. State Coll. Agr. News Letter (April 15): Mortality of codling moth larvae in the Hudson Valley reported as from 2 to 7 percent.

New Jersey. B. F. Driggers (April 17): Surveys in apple orchards in southern New Jersey show heavy population overwintered in many orchards. In central and northern New Jersey a moderate-to-heavy population on the trees last fall has been greatly reduced, owing to activities of predators, particularly birds.

Delaware. L. A. Stearns (April 16): No overwintered larvae transformed by this date, as compared with 5 percent on April 10, and 19 percent on April 24 in 1939. Approximately 50-percent mortality of caged material outside, as compared with 17 percent in 1939. Apples now in delayed-dormant stage.

Virginia. A. M. Woodside (April 18): From 30 to 40 percent of the larvae in the insectary at Staunton have pupated. Carry-over in Augusta will probably be somewhat lighter than last year, but a little heavier than the average for the last 4 or 5 years.

Georgia. J. E. Webb, Jr. (April): On April 3, about 10 percent of the overwintered larvae had pupated in orchards in the vicinity of Cornelia. First moth emergence observed on April 23.

Indiana. L. F. Steiner (April 4): First pupa found today in Vincennes area, although no examinations had been made prior to April 3. Carry-over appears at least as large as normal. (April 11): Examinations of trees and ground debris in the Vincennes area last week showed that 21 percent of surviving larvae had pupated, but 26 percent of all individuals found were dead. Mortality in emergence cages appears much higher than this. (April 18): Pupation began April 1. About 14 percent of brood reported as pupated. Mortality approximated 31 percent under natural conditions and 39 percent in emergence cages. Overwintered brood appears slightly larger than normal.

Kentucky. W. A. Price (April 23): Counts made on April 17 of larvae in bands at Lexington showed that there was a winter mortality of approximately 20 percent. This means that there is a heavy carry-over.

Wisconsin. C. L. Fluke (April 22): No check made as yet on overwintered larvae, although the winter was not too severe for survival.

Missouri. L. Haseman (April 24): On April 10, in southeastern Missouri, 18 percent of the overwintered larvae had pupated. In northeastern Missouri, on the same date, pupation had not begun. On April 23, in southwestern Missouri, 10 percent of the overwintered larvae had pupated.

C. Wingo (April 23): In southeastern Missouri 31 percent of the larvae have pupated.

Washington. E. J. Newcomer (March 26): Season in the Yakima Valley is a few days earlier than normal. Pupae first found about March 12.

E. J. Newcomer and C. C. Alexander (April 23): First moths observed on April 17 in orchards in the Yakima Valley. First moths taken in baits April 19.

FRUIT TREE LEAF ROLLER (Cacoecia argyrospila Walk.)

New York. N. Y. State Coll. Agr. News Letter (April 22). Egg masses scattered throughout eastern New York, although two orchards have been observed in Columbia County with large numbers of egg masses. In Niagara County the egg masses that have been hatched out were perfectly healthy in the several orchards from which they were taken. In a number of orchards in Orleans County they appear to be more prevalent this spring. All are alive and in good condition.

Illinois. W. P. Flint (April 17): Starting to hatch in western Illinois about April 9. Heavy snow and cold weather on April 12 completely stopped the hatch, and today most of the egg masses are still unhatched.

Missouri. C. Wingo (April 23): In southeastern Missouri 35 percent of eggs have hatched.

L. Haseman (April 24): First hatching of eggs in southeastern Missouri was observed on April 9. By the end of the month hatching may be expected to be in full swing. Egg-packet counts indicate that the eastern half of Missouri will again be as heavily infested as a year ago, if not more so.

EYE-SPOTTED BUDMOTH (Spilonota ocellana D. & S.)

New York. N. Y. State Coll. Agr. News Letter (April 15): Larval mortality in the Hudson Valley reported as negligible. (April 22); Treatment necessary in orchards in Niagara and Orleans Counties.

PISTOL CASEBEARER (Coleophora malivorella Riley)

Illinois. W. P. Flint (April 17): Overwintered larvae in their hibernacula have now migrated to the young apple buds and are feeding heavily on the newly opening leaves.

FRUIT APHIDS (Aphidae)

New York. N. Y. State Coll. Agr. News Letter (April 15): Aphid eggs scarce on all apple wood and all currant stems examined in the Hudson Valley, but not completely absent on either host. (April 22): First grain aphid (Rhopalosiphum prunifoliae Fitch) observed in Rockland County, in eastern New York, on April 11. In Orange County only a few have hatched on buds brought in at different intervals. A close examination of apple trees failed to disclose any aphid eggs in Nassau County. Some climatic factor is evidently responsible for this scarcity. Eggs are scarce, often almost entirely absent, in some orchards in Ulster and Columbia Counties. In Niagara County, western New York, eggs can be found by close examination. Ladybeetles appear to be present in fairly large numbers. In Wayne County aphid eggs are not nearly so numerous as last year. In Orleans County the first grain aphid was seen on April 16.

Virginia. A. M. Woodside (April 18): First hatched rosy apple aphid (Anuraphis roseus Baker) observed on April 5 in Augusta County. Infestation light. A few apple grain aphids observed hatching in northern Virginia on April 1, and rosy apple aphids observed in the same location on April 3. Aphids not numerous on apple buds, but approximately 75 percent of the individuals present are rosy aphids.

Ohio. T. H. Parks (April 25): Apple aphids (all species) very scarce on opening buds at Columbus.

Indiana. L. F. Steiner (April 4): First apple grain aphids in the Vincennes area were observed on April 1. Eggs very scarce in most orchards. (April 18): Observed hatching in very small numbers on April 1. Indications now are that R. prunifoliae, Aphis pomi Deg., and Anuraphis roseus will be much less abundant than normal.

Illinois. W. P. Flint (April 17): Examinations of apple orchards throughout the southern two-thirds of the State have shown very small numbers of aphids on the opening buds.

Wisconsin. C. L. Fluke (April 22): Aphid eggs on apple below normal in numbers.

Mississippi. C. Lyle (April 23): Report of injury to apple by the woolly apple aphid (Eriosoma lanigerum Hausm.) received from Leake County.

Missouri. L. Haseman (April 24): At this time there seems to be little evidence of aphids on the foliage of fruit trees in central Missouri.

EUROPEAN RED MITE (Paratetranychus pilosus C. & F.)

New York. N. Y. State Coll. Agr. News Letter (April 22): Eggs unusually numerous in many orchards in Ulster County, often being thick enough to give a reddish cast to the bark around the fruit spurs. European red mite generally present in Columbia County, although large numbers of eggs are found in only a few orchards.

New Jersey. B. F. Driggers (April 17): Observations indicate a heavy overwintered population of eggs on peaches and apples in all parts of the State.

PEACH

PLUM CURCULIO (Conotrachelus nenuphar Hbst.)

Georgia. O. I. Snapp (April 19): Adults began to appear from hibernation in numbers on March 29, at Fort Valley, following the first period this spring when a mean temperature of above 60° F. was recorded for 2 or more successive days. Average of 5.6 beetles per tree found on outside rows of peach orchards on March 29, and on April 5 this average reached 7.4 beetles per tree, indicating that the population is greater

than that of an average year. Insects became disseminated throughout the orchards on April 1 when three-fourths of the petals had fallen. No egg formation present in the bodies of females caught in orchards up to March 29. Mating was observed on March 29. Fully formed eggs were found in the bodies of a few females on April 1. The first egg in a little peach was found on April 6, which is 10 days later than the first egg last year. Eggs began to hatch on April 17, 15 days later than the date of hatching of the first eggs last year. The insect is getting a late start in comparison with the development of the fruit; therefore it is likely that all varieties of peaches in Georgia, with the possible exception of the Georgia Belle and Elberta, will escape an attack by second-brood curculio.

J. E. Webb, Jr. (April 2): Emergence of adults recorded for first time today at Cornelia. (April 23): Emergence of plum curculio apparently reached its peak at Cornelia about April 15. Unusually heavy emergence reported.

T. L. Bissell (April 5): First pairing observed among 8 curculios from 14 trees at Experiment, central Georgia.

Alabama. J. M. Robinson (April 17): Adults observed at Auburn on April 10.

Louisiana. C. O. Eddy (April 25): Reported as normally abundant on plums and peaches.

DOGWOOD BORER (Oberea tripunctata Swed.)

Texas. F. L. Thomas (April 22): Observed in Houston County on April 5 on peach.

ORIENTAL FRUIT MOTH (Grapholitha molesta Busck)

Delaware. L. A. Stearns (April 16): Thirty-nine percent of overwintered larvae have transformed, as compared with 81 percent on April 10 and 98 percent on April 24, 1939. Approximately 25 percent mortality of caged material outside, as compared with 10 percent in 1939.

Georgia. J. E. Webb, Jr. (April 19): First adult taken from bait traps in peach orchard on April 17 and from bait traps in apple orchard on April 15 at Cornelia.

Mississippi. C. Lyle (April 23): Injured peach twigs were received from the southern part of Forrest County on April 22.

Missouri. L. Haseman (April 24): Winter mortality high. Pupation advanced, with some emergence occurring where outdoor specimens were recently brought into the laboratory.

C. Wingo. (April 23): Moths have been taken in bait traps in southeastern Missouri.

PEACH BORER (Conopia exitiosa Say)

Mississippi. C. Lyle and assistants (April 23): Injury to untreated trees reported from the southwestern part of the State.

Nebraska. M. H. Swenk (April 15): Inquiries as to the control of the peach borer on peach trees received from Nemaha and Otoe Counties on March 21 and April 4, respectively.

PEACH TWIG BORER (Anarsia lineatella Zell.)

Oklahoma. F. A. Fenton (April 27): Reported from Tulsa and Stillwater.

BLACK PEACH APHID (Anuraphis persicae-niger Smith)

Colorado. F. H. Gates (April 18): Overwintered on peach trees as colonies at 7° F. to December 20. (Det. by J. H. Newton.)

GREEN PEACH APHID (Myzus persicae Sulz.)

Utah. G. F. Knowlton and F. C. Harmston (April 24): Abundant and injurious to small, scattered peach orchards in Grand County, especially near Moab.

WHITE PEACH SCALE (Aulacaspis pentagona Targ.)

Georgia. O. I. Snapp (April 19): More abundant than usual in central Georgia. Present on peach trees in commercial orchards at Fort Valley and Byron in Peach County, Perry in Houston County, Musella in Crawford County, and Sandersville in Washington County, all in central Georgia.

PEAR AND PLUM

PEAR PSYLLA (Psylla pyricola Foerst.)

New York. N. Y. State Coll. Agr. News Letter (April 22): Flies have been observed in the Hudson River Valley and in western New York. A few eggs observed in the lower part of the valley.

Washington and Idaho. E. J. Newcomer (March 26): Active and depositing eggs during the week of March 18-23 in Spokane Valley.

Washington. J. F. Cooper and G. H. Kaloostian (April 20): Adults noted out of hibernation in Spokane County on March 2. First eggs noted on March 16 and first nymphs on April 12.

PEAR THRIPS (Taeniothrips inconsequens Uzel)

New York. N. Y. State Coll. Agr. News Letter (April 22): Began to emerge on April 19.

Oregon. S. C. Jones (April 16): Reported as very numerous and causing considerable losses to prune set, in the Willamette and Umpqua Valleys. Set in some individual orchards is completely destroyed and the entire crop lost. Infestation on Italian prunes especially heavy. Losses on French and date prunes in the Umpqua Valley are less heavy, owing to their blossoming at least 10 days earlier than the Italian prunes.

A BLISTER BEETLE (Pomphopoea aenea Say)

Indiana. J. J. Davis (April 29): Reported to be abundant and eating all the blossoms from plum trees at Pekin and New Albany on April 25.

SAY'S BLISTER BEETLE (Pomphopoea sayi Lec.)

Oklahoma. C. F. Stiles (April 2): Found damaging the blossoms and foliage of pear trees at Cheyenne on March 29. Pear trees were literally covered with these insects and blossoms were damaged considerably.

TARNISHED PLANT BUG (Lygus pratensis oblineatus Say)

Washington. E. J. Newcomer (March 26): Caused serious injury to pear buds in some orchards in the Yakima Valley, owing to unseasonably warm weather from March 16 to 23.

CHERRY

BLACK CHERRY APHID (Myzus cerasi F.)

New York. N. Y. State Coll. Agr. News Letter (April 22): First emergence in Rockland County recorded on April 17.

BRAMBLES

SALMON FLY (Taeniopteryx pacifica Banks)

Washington. W. W. Baker (March 28): Leaves of raspberries just beginning to show and the stoneflies were riddling all open leaves at Roy, Pierce County. No evidence that they fed on the buds. This stonefly has been observed feeding on raspberries in this field for the fourth consecutive year.

RED-NECKED CANE BORER (Agrilus ruficollis F.)

Kentucky. W. A. Price (April 23): Boysenberry canes from a planting at Pineville were found to be heavily infested.

Mississippi. C. Lyle (April 23): Injured canes of youngberry plants containing larvae received from De Soto County on March 29.

RASPBERRY FRUITWORM (Byturus unicolor Say).

Washington. B. J. Landis and W. W. Baker (April 16): Although the Rubus hosts are in a more advanced stage of development than usual, the first adults were not found above ground in the field until April 11. Since that time they have been found feeding in new shoots of raspberry, in flowers of wild dewberry, dandelion, and dogwood, and on loganberry at Puyallup, Pierce County.

SNOWY TREE CRICKET (Oecanthus niveus Deg.)

Utah. G. F. Knowlton (April 12): Eggs present in moderate abundance in raspberry canes at Providence and Orem.

ROSE SCALE (Aulacaspis rosae Bouche)

Mississippi. M. L. Grimes (April 23): Light infestation on youngberry reported from the Meridian area.

GRAPEGRAPE BERRY MOTH (Polychrosis viteana Clem.)

Ohio. G. A. Runner (April 25): Winter mortality somewhat heavier than for several years. Examination of overwintered cocoons during the third week in April showed about 36 percent of the pupae dead, which is about 10 percent higher than was indicated by examinations made in February and early March.

GRAPE LEAF FOLDER (Desmia funeralis Hbn.)

California. D. F. Barnes (April 15): Malt-sirup traps put out in two vineyards and one plum orchard March 19 in Tulare County took adults, including gravid females, beginning April 9. Flight in 1939 began about April 4.

A CERAMBYCID (Phymatodes amoenus Say)

New Hampshire. J. G. Conklin (April 25): Ten adults were brought in from Rockingham County on April 18, with the report that they had been reared from cultivated grapevines heavily infested.

GRAPE TRUNK BORER (Clytoleptus albofasciatus Lap.)

Ohio. G. A. Runner (April 25): In a vineyard in the Sandusky area, where this insect has caused serious damage to the trunks of older vines, infestation has extended to parts of the vineyard previously not found infested. Large numbers of well developed larvae found in the feeding burrows formed in the heartwood of the grape trunks. Comparatively light infestation occurs in other vineyards in the same locality.

GRAPE LEAFHOPPERS (Erythroneura spp.)

Ohio. G. A. Runner (April 25): Adult leafhoppers are abundant in leaves and rubbish underneath the vines and in surrounding borders, but apparently not so numerous as usual.

Idaho. J. R. Douglass (March 27): E. comes ziczac Walsh is emerging in numbers from trash around bases of Virginia creepers and grapes on March 24.

PECAN

HICKORY SHUCK WORM (Laspeyresia caryana Fitch)

Georgia. G. F. Mozzette (April): First emergence of moths from overwintering larvae within old pecan shucks reported on April 3 in Albany. Large numbers reported as emerging between April 5 and April 17. Moths emerge in the spring before any pistillate flowers show on pecan trees.

A LEAF ROLLER (Cacoecia infumatana Zell.)

Louisiana. L. D. Newsom (April 25): Reported as active on pecan trees in Opelousas.

OBSCURE SCALE (Chrysomphalus obscurus Comst.)

Mississippi. D. W. Grimes (April 23): Heavy infestations on pecan trees reported from the west-central part of the State.

FILBERT

AN APHID (Myzocallis coryli Goeze)

Oregon. B. G. Thompson (April 16): First generation of the filbert aphid has hatched on filberts in the Willamette Valley, but has not begun to reproduce.

CITRUS

CITRUS THRIPS (Scirtothrips citri Moul.)

Arizona. R. S. Woglum (Exchange Pest Control Circular) (April): Increased interest in citrus thrips control, especially on oranges, in Arizona.

California. R. S. Woglum (Ibid.) (April): Present on oranges in central California, where they have been successfully controlled. Also present in the southern interior and Piru areas.

FLOWER THRIPS (Frankliniella tritici Fitch)

Arizona. C. D. Lebert (April 15): Reported as numerous since April 1 on citrus, flower beds, and truck crops at Phoenix. No damage noted, except to flowers.

A SCARABÆID (Anomala nigropicta Csy.)

Florida. J. R. Watson (April 26): Considerable damage to citrus reported in two sections of the State, around Citra, Marion County, and in Volusia County.

GREEN CITRUS APHID (Aphis spiraeicola Patch)

Florida. H. Spencer (April 16): Caused a great deal of curling of leaves of new growth on citrus trees which has come out since January. Actual damage light, as the copious bloom was not affected.

J. R. Watson (April 26): The Chinese ladybeetle (Leis dimidiata quinquespilota Hope) has been seen in Orange County, showing that it survived the very cold winter.

Mississippi. C. Lyle and assistants (April 23): Reports of injury to spiraea by the green citrus aphid were sent in from the west-central part of the State and from Meridian.

COWPEA APHID (Aphis medicaginis Koch)

Arizona. C.D. Lebert (April 15): The bur-clover aphid on citrus was among the most frequent species of aphid observed.

CALIFORNIA RED SCALE (Aonidiella aurantii Mask.)

California. R. S. Woglum (April): Conditions point to a heavy build-up of red scale during the coming summer and fall. Noticed largely on the wood and leaves of lemon trees at present.

COTTONY-CUSHION SCALE (Icerya purchasi Mask.)

Mississippi. G. L. Bond (April 23): Very noticeable again in the southeastern part of the State, after the greater part of it was apparently killed by cold weather.

CITRUS RED MITE (Paratetranychus citri McG.)

Florida. H. Spencer (April 16): These mites are appearing in some of the orange and grapefruit groves in the lower east-coast section of Florida.

FIG

RAISIN MOTH (Ephestia figulilella Greg.)

California. D. F. Barnes (April 15): Bait traps put out in two vineyards and one plum orchard took moths beginning April 5. Gravid females appeared in the collections of April 12. In 1939 the first moth was captured on April 7.

PAPAYA

PAPAYA FRUITFLY (Toxotrypana curvicauda Gerst.)

Florida. H. Spencer (April 16): Full-grown larvae went through the January freeze in the east-coast section without harm, where temperatures reached 27.5° F., and the plants were killed to the ground. Adults were reared in March from larvae in immature fruit taken from frozen plants.

TRUCK - CROP INSECTS

VEGETABLE WEEVIL (Listroderes obliquus Klug)

South Carolina. N. Allen and D. B. Lieux (April 2): Several small larvae observed feeding on tobacco plants in a bed at the Pee Dee Experiment Station, in Florence County. Only a relatively small number of plants injured. (April 18): A few larvae observed feeding on tomato plants near Florence. Larvae collected near Florence, tunneling the stems of large turnip plants that had produced seed stalks. (April 24): Since April 2 two additional plant beds of tobacco observed to be infested. Although the insect apparently feeds on all the leaves of the plants attacked, the bud is frequently destroyed, thus making the plant almost worthless for transplanting to the field.

Alabama. J. M. Robinson (April 17): Larvae observed on cabbage at Wadley, in Randolph County.

Mississippi. C. Lyle and assistants (April 23): Larvae received from Forrest County, and reports of injury from Attala County, from the Meridian area, and from the southeastern part of the State.

Louisiana. C. O. Eddy (April 25): Reported from a number of sources.

CUCUMBER BEETLES (Diabrotica spp.)

- Virginia. L. W. Brannon (April 30). First spotted cucumber beetle (D. duodecimpunctata F.) of the season observed at Norfolk feeding in the field on snap beans on April 18. This is 6 days later than the first emergence in 1939.
- South Carolina. J. G. Watts (April 15): Since April 5 there has been considerable damage to young seedling cucumbers in localized areas around Blackville by D. duodecimpunctata.
- Georgia. T. L. Bissell (April 6): Adults of D. duodecimpunctata few in number on Austrian peas, alfalfa, and fruit blossoms at Experiment, central Georgia. First eggs seen on April 4 in a cage. (April 24): No sign of damage to corn by the larvae.
- Alabama. J. M. Robinson (April 17): Twelve-spotted cucumber beetle observed at Auburn on April 9.
- Mississippi. L. Bridges (April 24): At Columbia, Marion County, most beans were killed by late frost, but D. duodecimpunctata is now appearing on the leaves.
- Louisiana. E. Millet (April 25): The only specimen of D. balteata Lec., a gravid female, was collected on March 18 on alfalfa.
- Iowa. H. E. Jaques (April 18): Specimens being brought in of both D. duodecimpunctata and the striped cucumber beetle (D. vittata F.).
- Missouri. L. Haseman (April 24): Neither spotted nor striped cucumber beetles have been observed in central Missouri.
- Oregon. R. G. Rosenstiel (April 16): Overwintered adults of the western twelve-spotted cucumber beetle (D. soror Lec.) are common on many plants in the Willamette Valley.

FLEA BEETLES (Halticinae)

- Mississippi. C. Lyle and assistants (April 23): Reports of injury by undetermined species to sweetpotato plants in beds in Coahoma County and to turnips in Attala County.

STRAWBERRY FRUITWORM (Cnephasia longana Haw.)

- Oregon. R. G. Rosenstiel (April 16): Young larvae are through drifting at Salem.

MAGGOTS (Hylemya spp.)

- South Carolina. J. G. Watts (April 12): Since April 5 as high as 35 percent of the cucumber seedlings in some fields at Blackville have been destroyed by maggots, probably H. brassicae Bouche or H. cilicrura Rond. On the nights of April 12 and 13, frost killed most of the cucumbers

and many cantaloups, masking the total damage of this maggot.

Mississippi. C. Lyle (April 23): Specimens of the seed-corn maggot (H. cilicrura) sent in from Copiah County, with statement that bean seed was being injured on March 27.

SOWBUGS (Oniscidae)

California. J. C. Elmore (April 18): Very numerous in an herb garden at Alhambra, attacking French sorrel. Also numerous in home gardens, attacking primroses and other plants.

POTATO AND TOMATO

COLORADO POTATO BEETLE (Leptinotarsa decemlineata Say)

Virginia. H. G. Walker and L. D. Anderson (April 26): Beetles reported as very abundant in some fields in the Norfolk area, but personally observed as rather scarce.

L. W. Brannon (April 30): Observed crawling around in a field at Norfolk on April 25, apparently emerging from soil which had just been cultivated. On April 26 two beetles were collected in hibernation beneath leaves and dead vines along the edge of woods near an open field.

Mississippi. C. Lyle and assistants (April 23): Light infestations reported from the southwestern counties of the State, from the Meridian area, and from Attala County, while a heavy infestation was reported from Hinds County on April 17. Numerous in a 300-acre tomato field, near Richton, Perry County, necessitating control measures.

E. W. Dunnam (April 22): The first beetle this season was noted feeding on potatoes in a garden at Leland on April 21.

Louisiana. C. O. Eddy (April 25): Commonly distributed but not yet much of a factor.

Missouri. L. Haseman (April 24): None observed in central Missouri.

Washington. C. E. Woodworth (April 8): Overwintered adults have emerged at Walla Walla and are laying large numbers of eggs on western dock (Rumex occidentalis). Early potatoes planted but not up.

A CHRYSOMELID (Zygogramma exclamationis F.)

Utah. G. F. Knowlton (April 14): Specimens submitted from Kaysville, with report that they were damaging tomatoes in a hothouse. (Det. by H. S. Barber.)

TOMATO PINWORM (Keiferia lycopersicella Busck)

Arizona. C. D. Lebert (April 18): Light infestation found in a field

of tomatoes in the Peoria area of the Salt River Valley. Larvae were two-thirds grown. Much leaf mining evident.

FALSE WIREWORMS (Eleodes spp.)

Texas. R. K. Flether (April 22): Tomato plants cut off both in coldframes and in the field on March 28 in Lavaca and De Witt Counties.

BEANS

MEXICAN BEAN BEETLE (Epilachna varivestis Muls.)

Virginia. L. W. Brannon (April 30): First of the 1940 season collected in the field on snap beans on April 29 at Norfolk. This is 11 days later than the first emergence in 1939 and is the latest this insect has appeared in the field since 1935. Emergence had apparently just begun, as only one beetle was found on four rows of beans 150 feet long. In general, the season appears to be about 2 weeks later than normal.

South Carolina. J. G. Watts (April 23): First specimen this year seen in flight at Williston.

Georgia. T. L. Bissell (April 24): One beetle found today on volunteer beans at Experiment. This is early, particularly in view of the late spring.

Florida. A. H. Madden (April 9): Adults are beginning to appear in considerable abundance in fields of beans in the locality of Havana in Gadsden County.

Alabama. J. M. Robinson (April 17): Still in hibernation at Auburn on April 2.

BEAN LEAF BEETLE (Cerotoma trifurcata Forst.)

Virginia. L. W. Brannon (April 30): First field emergence in the locality of Norfolk was April 30, when it was found feeding on young snap beans. This emergence date is 6 days later than that for 1939.

Georgia. T. L. Bissell (April 24): One beetle found today on volunteer beans at Experiment.

Mississippi. L. Bridges (April 24): Although most of the beans at Columbia were killed by late frosts, beetles are appearing on the leaves.

Louisiana. C. O. Eddy (April 25): Apparently about as numerous as usual, but less active, owing to the cold weather.

PEAS

PEA WEEVIL (Bruchus pisorum L.)

Oregon. J. C. Chamberlin (April 19): Emergence from hibernation began coincident with high temperatures between April 12 and 17. Light to very light infestations were found in pea plantings throughout the Willamette Valley. Few peas in bloom at this time. This is a relatively early migration date and about the same as in 1939.

CABBAGE

IMPORTED CABBAGE WORM (Pieris rapae L.)

Virginia. H. G. Walker and L. D. Anderson (April 26): Larvae very scarce on cabbage at Norfolk and on the Eastern Shore, but adults have been observed flying on warm days during April.

Kentucky. W. A. Price (April 23): A single specimen seen on April 10, the first one observed by the reporter this season.

Georgia. T. L. Bissell (April 24): One found at Experiment.

Mississippi. C. Lyle and assistants (April 23): Reported from Oktibbeha County, where they were feeding on cabbage. Larvae, probably of this species, reported as injuring cabbage in Attala County.

Missouri. L. Haseman (April 24): Observed flying for the first time on April 20 at Columbia.

Utah. G. F. Knowlton (April 6): Adults found at Logan and Smithfield, in Cache County; northern Utah. One adult brought in from Vernal. (April 11): Adults active at Provo and Spanish Fork.

DIAMONDBACK MOTH (Plutella maculipennis Curt.)

Utah. G. F. Knowlton (April 12): Adults active in an alfalfa field at Vineyard and among whitetop at North Farmington.

APHIDS (Aphidae)

Virginia. H. G. Walker and L. D. Anderson (April 26): Cabbage aphids observed in a field of young cabbage at Norfolk, but very scarce in fields of kale and collards left for seed.

Georgia. T. L. Bissell (April 24): The cabbage aphid is abundant on small plants at Experiment, working on the newest leaves.

O. I. Snapp (April 5): Cabbage aphids very abundant on young cabbage plants early in April at Fort Valley, central Georgia.

HARLEQUIN BUG (Murgantia histrionica Hahn)

Virginia. H. G. Walker and L. D. Anderson (April 26): Several observed feeding on seeding collard plants at Norfolk on April 3.

South Carolina. J. G. Watts (April 3): Large numbers observed on escarole and endive at Blackville. These bugs apparently emerged from hibernation over a very short period of time, as there were scarcely any to be found a week earlier.

Georgia. O. I. Snapp (April 5): Considerable damage caused to young cabbage plants at Fort Valley early in April.

Mississippi. C. Lyle and assistants (April 23): Injury to mustard reported in Attala County and to turnips in the Meridian area.

MELONS

DARKLING BEETLES (Tenebrionidae)

Arizona. C. D. Lebert (April 15): Blapstinus sp. and Ulus crassus Lec. found in a cantaloup field in the Chandler area of the Salt River Valley, destroying seed and young plants.

APHIDS (Aphiidae)

Utah. G. F. Knowlton and F. C. Harmston (April 24): Aphids severely damaging young cantaloups in some fields near Moab.

ASPARAGUS

ASPARAGUS BEETLE (Crioceris asparagi L.)

Virginia. L. W. Brannon (April 30): Observed on April 17, feeding in an asparagus field at Norfolk for the first time this season.

Utah. G. F. Knowlton (April 15): New asparagus shoots damaged at Plain City, Ogden, and Marriott, Weber County, and at Sunset, Davis County. Eggs being deposited.

Washington. R. D. Shenefelt (April 10): Observed in the vicinity of Clarkston.

TURNIP

TURNIP APHID (Rhopalosiphum pseudobrassicae Davis)

Mississippi. C. Lyle (April 23): Heavy infestations reported on old turnips in the west-central part of Mississippi.

Texas. M. J. Janes (April 22): Reported on turnips in Galveston County on March 28.

ONIONS

ONION MAGGOT (Hylemya antiqua Meig.)

Oregon. B. G. Thompson (April 16): Onions just being planted in the Willamette Valley, and adults present in the field.

ONION THRIPS (Thrips tabaci Lind.)

Arizona. C. D. Lebert (April 15): During the period April 1-15 injury by this insect has been severe on 2 acres of onions in the Phoenix area.

SPINACH

GREEN PEACH APHID (Myzus persicae Sulz.)

Virginia. H. G. Walker and L. D. Anderson (April 26): Spinach aphids overwintered on large spinach at Norfolk, but soon died from a fungous disease when the weather warmed up, and are now very scarce in that area.

A WEEVIL (Ceutorhynchus tau Lec.)

Texas. R. K. Fletcher (April 22): Garlic weevil observed on garlic in Lavaca County on April 8.

S. W. Bilsing (March 27): Small larva received from La Grange, Fayette County. Reported as ruining several fields of garlic. Found in the tip of the plant at the origin of the first leaves and rolled up in them. (Det. by W. H. Anderson.)

SWEETPOTATO

SWEETPOTATO LEAF BEETLE (Typophorus viridicyaneus Crotch)

South Carolina. W. C. Nettles (April 11): Reported that the larva was found somewhere in the State breeding in a sweetpotato. (Det. by W. H. Anderson.)

STRAWBERRY

STRAWBERRY WEEVIL (Anthonomus signatus Say)

Tennessee. G. M. Bentley (April): Found from April 10 to 12 on strawberry plants at Jackson, Madison County, where there was 5-percent damage, and on strawberry at Ripley, Lauderdale County, where there was a light infestation.

A CHRYSOMELID (Timarcha intricata Hald.)

Washington. W. W. Baker (April 12): Often present in sufficient numbers to cause concern. Reported on strawberry at Graham, Pierce County, but a visit to the field did not reveal large enough numbers to justify control measures.

STRAWBERRY WEEVILS (Curculionidae)

Utah. G. F. Knowlton (April 16): Larvae of the strawberry root weevil (Brachyrhinus ovatus L.) are damaging strawberry roots in some patches in Weber County.

Washington. W. W. Baker (April): Adults of the weevil Dyslobus ursinus Horn were sent in on April 6, with the statement that they were fairly common in a strawberry field at Napavine, Lewis County. This species has not previously been found in strawberry fields in this State. D. decoratus Lec. was present on April 12 and 15 at Graham in sufficient numbers to warrant control measures in a small planting of strawberries just set out. Associated with this species were D. granicollis Lec., Brachyrhinus ovatus L., Nemocestes incomptus Horn, Plinthodes taeniatus Lec., Panscopus costatus Buch., and Geodercodes latipennis Csy.

STRAWBERRY CROWN BORER (Tyloderma fragariae Riley)

Mississippi. M. L. Grimes (April 23): Light injury reported in the Meridian area.

STRAWBERRY CROWN MINER (Aristotelia fragariae Busck)

Minnesota. A.G. Ruggles (April 19): Larvae taken at Deerwood, working in the crowns of strawberry plants in storage.

A SPITTLE BUG (Philaenus leucophthalmus L.)

Oregon. R. G. Rosenstiel (April 16): Present on strawberries and other plants in the Willamette Valley. Control measures recommended. Abundance normal.

RED SPIDERS (Tetranychus spp.)

Virginia. H. G. Walker and L. D. Anderson (April 26): Very abundant in some strawberry fields in the Norfolk area, on the Eastern Shore, and in the area around Newport News, Hampton, and Poquoson. Very scarce or entirely absent in other fields. (Specimens collected at Norfolk identified by E. A. McGregor as a new species.)

Texas. M. J. Janes (April 22): T. telarius L. observed from March 7 to 21 in Galveston County on strawberries. Control measures necessary.

COTTON INSECTS

BOLL WEEVIL (Anthonomus grandis Boh.)

Georgia. T. L. Bissell (April 2): One seen in flight in an old cotton field at Experiment, central Georgia.

P. M. Gilmer (April 6): A few seen flying during the week in Tift, Cook, Berrien, Lowndes, and Echols Counties. Winter losses apparently not overly heavy, and it is probable that the infestation will be normal in northern Georgia and nearly so in southern Georgia. (April 20): Conditions in the southern coastal plain counties too cool for movement. Few seen in this section, and indications are that a rather severe winter loss was experienced in the sections of the State uncovered by snow during the cold weather in January and February.

Florida. C. S. Rude (April 27): None observed in the cottonfields. During the last 2 years by this time weevils had been observed in scattered fields. Weevils in the hibernation cages continue to be active.

Alabama. F. E. Guyton (April): In a survey at Auburn 301 weevils were collected from old cotton bolls. All were dead. Lowest temperature for the year was 7° F. Usual surveys run from 2 to 10 percent live weevils.

Louisiana. R. C. Gaines and assistants (April 27): None taken on field flight screens during the week ended April 26 in Madison Parish. Seven weevils were taken during this week in 1938 and five in 1939.

PINK BOLLWORM (Pectinophora gossypiella Saund.)

Texas. A. J. Chapman (April 13): First moth emergence from the hibernation experiment in Presidio County recorded on April 7. Weather very cool, and only 9 moths have emerged. (April 20): Emergence continued very light throughout the week in Presidio County, owing to cool weather. A total of 18 moths emerged from the 90 cages in which bolls were installed, and 24 from the 8 cages of cocoons. (April 27): A total of 660 moths has emerged from the hibernation experiment. Of these, 295 came from the cocoons and 365 from the bolls. Most of the cocoon emergence was from the nonburied treatment. Thus far 62 moths have emerged from the bolls buried dry last September, as compared to 8 moths from the bolls that were buried and irrigated.

FOREST AND SHADE TREE INSECTS

CANKERWORMS (Geometridae)

New York. N. Y. State Coll. Agr. News Letter (April 22): A female spring cankerworm moth (Paleacrita vernata Peck.) and egg mass were found in Wayne County on April 11.

Ohio. T. H. Parks (April 25): Eggs of the fall cankerworm (Alsophila pometaria Harr.) are common on elms along the river near Columbus.

N. F. Howard (April 8): Male cankerworm moths were very abundant at lights at 8:30 p.m. on March 28, the first warm night of the spring. (Det. by J. F. G. Clarke.)

Indiana. J. J. Davis (April 29): Spring cankerworms continue as a serious problem in northeastern Indiana and there is every evidence that considerable defoliation of timber trees, especially elm, will result. The fall cankerworm is present in destructive numbers in some areas.

Illinois. W. P. Flint (April 17): Adults have probably all gone up the trees and laid their eggs, as there were enough warm nights early in April. Male moths were very numerous in a number of localities in central Illinois and it seems probable that cankerworms will be fully as abundant as they were last year.

Missouri. L. Haseman (April 24): Cankerworm eggs have been hatching in central Missouri for 2 weeks, and the earliest larvae are already in the second instar. Infestation is general throughout the northern two-thirds of the State.

Iowa. H. E. Jaques (April 18): Reported as moderately abundant in southern Iowa, although the bands do not seem to show as many moths as were present a year ago. Few female moths reported in regions kept under control by banding last year.

Minnesota. A. G. Ruggles (April 19): Male moths of spring cankerworm abundant at windows in Saint Paul on April 12.

Nebraska. M. H. Swenk (April 15): Request for control measures for spring cankerworm received on March 20 and 26, from Douglas County.

Kansas. R. H. Bryson (April 26): Moths of both species were abundant earlier in the spring and will no doubt cause trouble on elm trees that were not banded.

Oklahoma. F. A. Fenton (April 27): Spring cankerworm reported from Ada.

Texas. E. W. Laake (April 23): Spring cankerworm reported as unusually abundant. Residents northeast, north, and northwest of the city limits of Dallas reported heavy defoliation of small forests and the invasion of yards where roses and other shrubs were reported to have been defoliated within 24 to 48 hours. Considerable damage to fruit trees in several places in Dallas County.

FOREST TENT CATERPILLAR (Malacosoma disstria Hbn.)

New York. E. P. Felt (April 23): Eggs found in considerable abundance at Livingstone Manor, indicating probable injury by the larvae later in the summer. Damage also to be expected in parts of the southern Catskills.

N. Y. State Coll. Agr. News Letter (April 22): Egg masses of tent caterpillars, mostly forest tent caterpillar, appear to be numerous in eastern New York.

South Carolina. B. H. Wilford (April 25): Considerable feeding by forest tent caterpillars on foliage of oak and sweetgum was first observed on April 15 in the Francis Marion National Forest, in Berkeley County.

Mississippi. J. P. Kislanko (April 23): Very numerous in Perry, Forrest, and Jones Counties. Some colonies consist of nearly grown larvae, while others are very small. Many unhatched egg clusters were observed on a blackgum tree near Brooklyn, Forrest County.

Utah. G. F. Knowlton and F. C. Harmston (April 24): Tent caterpillars (Malacosoma spp.) severely defoliating large cottonwood and willow trees near Moab.

BAGWORM (Thyridopteryx ephemeraeformis Haw.)

Indiana. J. J. Davis (April 29): Reported from several localities in southern Indiana as abundant, mostly on conifers. One report referred to them as abundant on blackberries. No information received on the effect of the severe weather of January on winter mortality.

BRONZED BIRCH BORER (Agrilus anxius Gory)

Colorado. F. H. Gates (April 18): Definite establishment is evident in the Denver area. Specimens taken from both peach and poplar.

ASH

A NOCTUID (Oncocnemis punctilinea Hampson)

Arizona. C. D. Lebert (April 15): Usual damage to the lower foliage of ash trees reported as occurring over the entire Phoenix area.

BEECH

A BORER (Goes pulverulentus Hald.)

Pennsylvania. Reported as prevalent on European beech at Chestnut Hill, in the Philadelphia area. It prefers the European to the American beech. (Det. by T. L. Guyton.)

CYPRESS

A BEETLE (Phloeosinus sp.)

Texas. R. K. Fletcher (April 22): Reported on Arizona cypress in Tarrant County on March 30.

ELM

ELM LEAF BEETLE (Galerucella xanthomelaena Schr.)

New York. N. Y. State Coll. Agr. News Letter (April 15): Reported as most troublesome household insect at present.

ELM BORER (Saperda tridentata Oliv.)

New York. E. P. Felt (April 23): Larvae were found in small numbers in the bark of a weak elm at Westbury, Long Island.

EUROPEAN ELM SCALE (Gossyparia spuria Mod.)

Pennsylvania. G. B. Sleesman (April 15): Common throughout the Philadelphia area on all species of elm, in both nursery and ornamental plantings.

LOCUST

LOCUST LEAF MINER (Chalepus dorsalis Thunb.)

Delaware. E. P. Felt (April 23): Damage is expected to be somewhat abundant and injurious the coming season in the Wilmington section.

Pennsylvania. T. L. Guyton (April): Defoliated practically all of the native locust trees in the Philadelphia area during the last summer. (Det. by T. L. Guyton.)

LOCUST BORER (Cyllene robiniae Forst.)

Pennsylvania. G. B. Sleesman (April 5): Severe damage has been noted on all stands of native locust, both large and small trees, in the Philadelphia area.

MAPLE

SUGAR MAPLE BORER (Glycobius speciosus Say)

Pennsylvania. G. B. Slesman (April): Very common on sugar maples in the Philadelphia area in nursery row and in ornamental plantings.

OAK

GOLDEN OAK SCALE (Asterolecanium variolosum Ratz.)

New York. E. P. Felt (April 23): Abundant in the vicinity of Albany.

Pennsylvania. E. P. Felt (April 23): Abundant on twigs of a pin oak at Germantown.

GOUTY OAK GALL (Andricus punctatus Bass.)

Connecticut. E. P. Felt (April 23): Reported as numerous and injurious on a large oak at Middletown.

PALMETTO

PALM LEAF SKELETONIZER (Homaledra sabalella Chamb.)

Alabama. J. M. Robinson (April 17): Attacking the leaves of sable palmetto in Auburn on April 9. Very active when disturbed. No previous records of insects attacking this plant in this State. (Det. by C. Heinrich.)

PINE

SOUTHERN PINE BEETLE (Dendroctonus frontalis Zimm.)

Virginia. L. A. Hetrick (April 16): Overwintered brood found in bark of several loblolly pines near Yorktown. The trees had been injured by lightning last summer. Most individuals now in the pupal stage. This brood was apparently unaffected by the recent cold winter. Recorded minimum from nearest official weather station was 0° F. on January 27 and 28.

A LOOPER (Ellopiella pellucidaria G. & R.)

Virginia. L. A. Hetrick (April 24): First emergence of adults noted in pine stands in King and Queen County.

PINE BARK APHID (Pineus strobi Htg.)

Connecticut. E. P. Felt (April 23): Somewhat abundant on white pines at Stamford and Darien.

CALIFORNIA PINE-LEAF SCALE (Aspidiotus californicus Coleman)

Connecticut. G. H. Plumb (March 27): Light infestation present on several trees in Rainbow. No females found on the material collected.

POPLAR

GREEDY SCALE (Aspidiotus camelliae Sign.)

Arizona. C. D. Lebert (April 15): Heavy infestation reported on poplar trees in the Kingman area.

COTTONWOOD SCALE (Chionaspis ortholobis Comst.)

Nebraska. M. H. Swenk (April 15): Reported on April 11 to be killing cottonwood trees in a grove in Garfield County.

SPRUCE

AN APHID (Neomyzaphis abietina Walk.)

Washington. W. W. Baker (April): Reported more abundant than usual on spruce at Tacoma and Puyallup, Pierce County, on March 24 and April 7.

TULIPTREE

TULIPTREE SCALE (Toumeyella liriodendri Gmel.)

Pennsylvania. G. B. Slesman (April 12): Common on tuliptrees in the Philadelphia area, often killing the trees.

WILLOW

A GALL FLY (Rhabdophaga sp.)

Connecticut. E. P. Felt (April 23): Larvae of a willow-twig midge was sufficiently abundant in good-sized willows at Greenwich to cause considerable damage.

COTONEASTER

A WEBWORM (Cremona cotoneastri Busck)

Oregon. J. Schuh and R. G. Rosentiel (April 16): The cotoneaster webworm has been found in the second, third, and fourth instars in the Willamette Valley. The larvae are feeding but none have pupated.

LEAF CRUMPLER (Mineola indigenella Zell.)

Nebraska. M. H. Swenk (April 15): Found to have been attacking Cotoneaster acutifolia in Lincoln County on April 4.

DOGWOOD

DOGWOOD CLUB GALL (Mycodiplosis alternata Felt)

Connecticut. E. P. Felt (April 23): Somewhat common and injurious in both the Danbury and Stamford areas.

GLADIOLUS

GLADIOLUS THRIPS (Taeniothrips simplex Morison)

Florida. J. R. Watson (April 26): Prevalent in gladiolus plantations in Manatee and Lee Counties.

Montana. H. B. Mills (April 22): Found on dormant gladiolus at Missoula and Bozeman.

HOLLYHOCK

LEAF BEETLES (Chrysomelidae)

Utah. G. F. Knowlton (April 13): Damaging hollyhock foliage at Farmington and Salt Lake City.

IRIS

APHIDS (Aphidae)

Virginia. C. R. Willey (April): On April 12 several beds of German iris at Roanoke were observed to be heavily infested with aphids, some of which were parasitized.

DEODAR

DEODAR WEEVIL (Pissodes nemorensis Germ.)

Mississippi. N. D. Peets (April 23): Specimens sent in with the statement that they were feeding on Cedrus deodara trees in Walthall County.

LILY

BULB MITE (Rhizoglyphus hyacinthi Bdv.)

Mississippi. C. Lyle (April 23): Specimens sent in from Lowndes County, where they were injuring lily bulbs, and from Wilkinson County, where gladiolus bulbs were infested.

MAGNOLIA

MAGNOLIA SCALE (Neolecanium cornuparvum Thro)

New York. R. E. Horsey (April): Magnolias badly infested on April 18 at Rochester. On some of the trees the large scale was scraped off last summer, but there appear to be many of the overwintered young scale.

Pennsylvania. E. P. Felt (April 23): Found in injurious numbers on magnolia in the vicinity of Philadelphia.

OLEANDER

OLEANDER APHID (Aphis nerii Fonsc.)

Arizona. C. D. Lebert (April 15): Abundant on oleander in Salt River Valley

RHODODENDRON

BROAD-NECKED ROOT BORER (Prionus laticollis Drury)

Pennsylvania. E. P. Felt (April 23): Work of Prionus grubs, probably this species, somewhat abundant in rhododendron roots in the Philadelphia area.

A BEETLE (Corthylus punctatissimus Zimm.)

Pennsylvania. E. P. Felt (April 23): The pitted ambrosia beetle was somewhat prevalent in rhododendron roots in the Philadelphia section.

ROSE

ROSE APHID (Macrosiphum rosae L.)

Virginia. C. R. Willey (April): Aphids on roses in Richmond very scarce, as compared to last season at this time.

Utah. G. F. Knowlton and F. C. Harmston (April 24): Reported as damaging roses at Moab.

Arizona. C. D. Lebert (April 15): Abundant on rose in the Salt River Valley

INSECTS AFFECTING GREENHOUSE
AND ORNAMENTAL PLANTS

CITRUS WHITEFLY (Dialeurodes citri Ashm.)

Alabama. J. M. Robinson (April 17): Observed on Cape-jasmine at Auburn on April 9.

Mississippi. C. Lyle (April 23): Specimens on gardenia received from Lowndes County.

CITRUS MEALYBUG (Pseudococcus citri Risso)

Nebraska. M. H. Swenk (April 15): Complaints of mealybugs attacking house plants were received on April 3 from Frontier County.

Arizona. C. D. Lebert (April 10): Heavy infestation found on coleus, begonia, pepper, and lantana in a greenhouse at Phoenix. Severe injury to many plants.

OYSTERSHELL SCALE (Lepidosaphes ulmi L.)

New York. R. E. Horsey (April): Several small lilacs infested, some quite severely on April 17, at Rochester, N.Y. A seedling ash tree, 15 feet tall, which sprouted up in a forest planting of Scotch pine, was two-thirds encrusted on April 18.

Pennsylvania. G. B. Sleesman (April 17): Very common on birch, poplar, and lilac, throughout the Philadelphia section of Pennsylvania. Considerable damage to many trees and shrubs.

Minnesota. A. G. Ruggles (April 19): Very abundant on scotoneaster hedges at Saint Paul.

COTTONY-CUSHION SCALE (Icerya purchasi Mask.)

Arizona. C. D. Lebert (April 15): Building up rapidly on pittosporum in the Phoenix area. No predators observed.

BARNACLE SCALE (Ceroplastes cirripediformis Comst.)

Alabama. F. E. Guyton (March 28): Found infesting maple and dogwood at Auburn and Phenix City. Damage light.

OLIVE SCALE (Parlatoria oleae Colv.)

California. P. Simmons (April 10): Eggs present under scales on lilac and rose at laboratory on April 5. Examinations made April 6, 8, and 10 revealed the first crawlers on April 10, on rose.

ALTHEA

APHIDS (Aphididae)

Georgia. T. L. Bissell (April 24): A dark gray aphid, undetermined, is very abundant on althea.

AZALEA

AZALEA LEAF MINER (Gracilaria azaleella Brants).

Oregon. J. Schuh (April 10): Ten percent of the adults in the Portland area have emerged.

AZALEA LACEBUG (Stephanitis pyrioides Scott)

Georgia. J. M. Robinson (April 17): Nymphs observed on azalea at Columbus on April 15.

AZALEA SCALE (Eriococcus azaleae Comst.)

Mississippi. C. Lyle and assistants (April 23): Specimens were sent in from Greene, Grenada, Hinds, Pike, and Walthall Counties.

BOXWOOD

BOXWOOD LEAF MINER (Monarthropalpus buxi Laboulb.)

Virginia. F. R. Freund (April): One pupa found at Lynchburg, on April 5. In Richmond approximately 50 percent had pupated by April 11. All miners had pupated by April 18 in Richmond.

CAMELLIA

CAMELLIA SCALE (Lepidosaphes camelliae Hoke)

Mississippi. R. P. Colmer (April 23): Injury to camellia was reported from Oktibbeha County.

CHRYSANTHEMUM

CHRYSANTHEMUM APHID (Macrosiphoniella sanborni Gill.)

Mississippi. M. L. Grimes (April 23): Reported on chrysanthemum in the Meridian area.

Arizona. C. D. Lebert (April 15): Abundant on chrysanthemum in Salt River Valley.

INSECTS ATTACKING MAN AND
DOMESTIC ANIMALS

MAN

MOSQUITOES (Culicinae)

Florida. G. H. Bradley (April 18): Only scattered breeding of the salt-marsh mosquitoes (Aedes taeniorhynchus Wied. and A. sollicitans Walk.) has occurred this spring, and practically no adults have invaded the coastal cities of Volusia County.

Oregon. H. H. Stage (April 5): Small larvae of A. vexans Meig. and A. lateralis Meig. were recorded on April 4 for the first time this season. Relatively numerous in local areas in Multnomah County, where the rising waters of the Columbia and Willamette Rivers had covered lowlands.

SANDFLIES (Culicoides spp.)

Florida. J. B. Hull (March 31): A small emergence of sandflies occurred in the vicinity of St. Lucie County late in March.

G. H. Bradley (April): C. furens Poey and C. melleus Coq., chiefly the former, have been abundant and annoying at New Smyrna, Volusia County, since early in March.

BEDBUG (Cimex lectularius L.)

Idaho. J. R. Douglass (March 27): Reports of bedbugs infesting houses in Twin Falls received during the last month.

BAT BUG (Cimex pilosellus Horv.)

Iowa. E. A. Back (April 5): Specimens received from Muscatine where they were reported in a house having attic infested with bats.

CHIGGER (Eutrombicula alfreddugesi Oud.)

Louisiana. W. H. White (April 8): Infestation from a one-half hour stay in a peafield near Houma on March 19. Other reports of infestations in the same area.

TROPICAL RAT MITE (Liponyssus bacoti Hirst)

District of Columbia. F. C. Bishopp (April 16): Severely bit a child in an apartment where rats were numerous. (April 24): Rat mites submitted by occupants of a house, where members of a family were annoyed. Rats were abundant in and about the premises. (Det. by H. E. Ewing.)

North Carolina. E.A. Back (March 19): Specimen sent from apartment house in Charlotte, where people were being bitten. (Det. by H. E. Ewing.)

Wisconsin. F. C. Bishopp (April 17): Rat mites reported as occurring in a house in Milwaukee in great numbers. (Det. by H. E. Ewing.)

Texas. E. W. Laake (April 23): Report of a heavy infestation in a rat-infested apartment house in Dallas.

AMERICAN DOG TICK (Dermacentor variabilis Say)

Massachusetts. C. N. Smith (April 19): First reported activity of adults on Martha's Vineyard was on April 1. First determined specimens collected on April 15. The first observed activity of larvae and nymphs was a heavy infestation of meadow mice by both stages on April 3.

Virginia. F. C. Bishopp and H. L. Trembley (April 30): Ticks present on April 29 but not abundant along the Columbia Pike, about 2 miles southwest of Bailey's Crossroads, Fairfax County.

ROCKY-MOUNTAIN SPOTTED FEVER TICK (Dermacentor andersoni Stiles)

Idaho. J. R. Douglass (March 27): Appears to be very abundant in south-central Idaho.

BLACK WIDOW SPIDER (Latrodectus mactans F.)

Nebraska. M. H. Swenk (April 15): Reported as killed by a correspondent in Fillmore County on April 11.

Idaho. J. R. Douglass (March 27): Several complaints of this pest in basement of dwellings in Twin Falls received during the last few weeks.

Nevada. G. G. Schweis (April 19): Reported from numerous places during the last week.

CATTLE

SCREWORM (Cochliomyia americana C. & P.)

Mississippi. N. L. Douglass (April 23): Screwworms found on some cattle shipped into Grenada County, probably from Texas, but no specimens received.

Texas. O. G. Babcock (April 22): Blow flies (Cochliomyia sp.) present in normal numbers.

HORN FLY (Haematobia irritans L.)

Virginia. F. C. Bishopp and H. L. Trembley (April 30): Observed on about 60 cows on April 29 at 2 dairy farms in Fairfax County. There was an average of 6 or 7 flies per cow.

Florida. E. E. Rogers (March 23): First noticed annoying cattle at Panama City on this date.

Texas. D. C. Parman (April 17): Very marked increase in horn fly population during the first half of the month, at a farm north of Uvalde. Increase is uniform rather than spasmodic, from only a few flies the first of the month to from 100 to 1,000 or more, per animal on 12 animals. On this date approximately 400 flies on each horn of 1 cow. Infestation apparently general.

E. W. Laake (April 23): During the week ending April 20, the average number of horn flies on dairy cows in the vicinity of Dallas was approximately 35 per head, where on several cattle on the laboratory premises the number averaged 75 per head. Cold spells of short duration occurred almost weekly during the last month, apparently holding down the fly population.

A DEERFLY (Chrysops fuliginosa Wied.)

Florida. E. B. Blakeslee and S.W. Simmons (March 31): About 12 specimens noticed attacking a pen of confined deer at Lynn Haven. (April 9): Attacking cattle at Panama City.

COMMON CATTLE GRUB (Hypoderma lineatum DeVill.)

Florida. S. W. Simmons (April 17): An examination of 73 animals in 2 local dairies showed that these animals were infested earlier in the season, but that all the grubs had dropped by April 16. Twenty-five grub lesions were found on the animals.

BUFFALO GNATS (Simulium spp.)

Tennessee. G. M. Bentley (April 6): Reported as attacking livestock at Ripley, Lauderdale County. Light outbreak at present.

A HORSEFLY (Tabanus sp.)

Florida. S. W. Simmons (March 28): Several specimens noted attacking cattle at Panama City.

LONG-NOSED CATTLE LOUSE (Linognathus vituli L.)

Florida. J. R. Watson (April 26): Long-nosed blue louse reported as infesting 1,000 cattle in Sarasota County.

SHORT-NOSED CATTLE LOUSE (Haematopinus eurysternus Nitz.)

Texas. O. G. Babcock (April 22): Infestation very heavy this spring from the Panhandle to the Edwards Plateau.

LONE STAR TICK (Amblyomma americanum L.)

Mississippi. C. Lyle (April 23): Specimens received from Pike County.

HORSE

HORSE BOTFLY (Gasterophilus intestinalis Deg.)

Texas. D. C. Parman (April 20): Six adults taken from a team at a farm north of Uvalde during week ended April 20. This is the first activity this season.

POULTRY

FEATHER MITE (Liponyssus sylviarum C. & F.)

Oregon. D. C. Mote (January 11): Attacking chickens at Corvallis. (Det. by F. C. Bishopp.)

TURKEY GNAT (Simulium meridionale Riley)

Mississippi. C. Lyle (April 23): Reported as infesting turkeys in Lauderdale on April 13.

SHEEP AND GOATS

BLACK BLOWFLY (Phormia regina Meig.)

Texas. D. C. Parman (March 31): A considerable number of wool-maggot infestations reported in the vicinity of Uvalde.

Correction.—The botfly reported by G. F. Knowlton on page 70 of the Insect Pest Survey Bulletin dated April 1, 1940, referred to Oestrus ovis instead of Gasterophilus haemorrhoidalis.

GOAT LICE (Anoplura)

Texas. O. G. Babcock (April 22): All species rather numerous and well distributed throughout the goat-raising area, which is the Edwards Plateau and the escarpment thereof.

HOUSEHOLD AND STORED-PRODUCTS INSECTS

TERMITES (Isoptera)

- New York. N. Y. State Coll. Agr. News Letter (April 15): Reported to be more common than usual during the last week. Noticeable now because they are swarming in almost countless numbers in houses.
- New Jersey. M. D. Leonard (March 31): A fair-sized flight of winged forms of Reticulitermes flavipes Koll. within a porch at Haddonfield. A swarm emerged in this porch a week or so earlier last year.
- Delaware. L. A. Stearns (April 15): Heavy infestation observed in basement of building at Claymont.
- Maryland. E. N. Cory (April 22): A great many reports of termite damage to houses coming from all over the State.
- Virginia. H. G. Walker and L. D. Anderson (April 26): Reported swarming in a number of buildings in the Norfolk area during April.
- Mississippi. C. Lyle (April 23): Specimens received from Lowndes and Montgomery Counties, where buildings were infested. Complaints of damage received from 10 counties throughout the State.
- Ohio. T. H. Parks (April 25): The usual number of inquiries being received throughout the State.
- Indiana. J. J. Davis (April 29): Termites continue to be a major item. Many requests received.
- Minnesota. A. G. Ruggles (April 19): Termites found damaging timbers in February in a house in Worthington. This is the second location in the State where they have been found.
- Missouri. L. Haseman (April 24): Reports of swarming of these pests have continued throughout the month from various sections of the State.
- Nebraska. M. H. Swenk (April 15): Two inquiries received on April 8 and 10 from Douglas County, as to control of Reticulitermes tibialis Banks working in buildings.
- Kansas. H. R. Bryson (April 25): About the usual number of reports received of injury from termites.
- Texas. R. K. Fletcher (April 22): Termites reported in Harris County on April 1 and in Hunt County on April 15.
- Nevada. G. G. Schweis (April 19): The first case of termite presence for the season was reported on April 17 at Reno.

ANTS (Formicidae)

Maryland. E. N. Cory (April 22): Citronella ants have been reported from houses in Annapolis and Bel Air, and in a well near College Park. Hundreds of mounds of Formica exsectoides Forel were located near Great Falls, and a report has come in of mounds at Ardmore.

Georgia. J. L. Robeson (April 12): Specimens of Camponotus abdominalis subsp. floridanus Buckl. sent from Brunswick, where they were said to be destroying shrubbery by building their mounds at the roots, and to be overrunning several houses. (Det. by M. R. Smith.)

Florida. H. Spencer (April 16): The little fire ant (Wasmannia auropunctata Roger) survived the unusually cold winter in citrus-grove infestations in the east-coast section. The colonies suffered only a reduction in numbers of workers. The queens appear to be unharmed.

C. S. Rude (April 27): Cut ants are damaging cotton in some places. The damage is spotted and cannot be considered serious, except in the individual fields.

Mississippi. C. Lyle (April 23): Reports of houses infested with Argentine ants (Iridomyrmex humilis Mayr) received from Pike County. Fire ants (Solenopsis xyloni McCook) reported as causing trouble in a house in Lauderdale County.

G. L. Bond (April 23): Complaints of carpenter ants (Camponotus sp.) as causing trouble in the southeastern part of the State.

Texas. R. K. Fletcher (April 22): Harvester ants, possibly Pogonomyrmex barbatus F. Smith, reported from Bexar County on March 28 and from Guadalupe County on March 29. S. geminata F., reported from Azpata County on March 28, where it was eating bark from peach trees. Carpenter ants (Camponotus sp.) in houses in Harris County on March 25 and 31.

Utah. G. F. Knowlton (April 15): Ants causing annoyance in houses and around basement walls in several houses at Logan.

BROWN-BANDED COCKROACH (Supella supellectilium Serv.)

Oklahoma. R. W. Kaiser (December 22): Specimens received which are entirely new to our collection in Stillwater. This pest has been found in several houses infested with the German cockroach, but it is not common. (Det. by A. B. Gurney.)

GERMAN COCKROACH (Blattella germanica L.)

District of Columbia. E. A. Back (April 9): A red mite (Erythraeidae, det. by H. E. Ewing) found fairly common on croton bug infesting a room in Washington, D. C.

Mississippi. C. Lyle (April 23): Reports of annoyance by this pest received from Hinds and Washington Counties.

Nebraska. M. H. Swenk (April 15): A complaint of this cockroach as infesting a house in Richardson County was received on April 13.

ORIENTAL COCKROACH (Blatta orientalis L.)

Utah. G. F. Knowlton (April 1): Specimens submitted from Monticello, with report of a heavy infestation in a building.

A COCKROACH (Parcoblatta sp.)

Ohio. E. A. Back (April 15): Specimens received from house in Cleveland. (Det. by A. B. Gurney.)

FIELD CRICKET (Gryllus assimilis F.)

Arizona. C. D. Lebert (April 15): During the first half of April the common field cricket was becoming numerous in shrubbery and flower beds at Phoenix. Several reports that many of the insects were getting into houses and becoming annoying.

BOXELDER BUG (Leptocoris trivittatus Say)

Pennsylvania. T. L. Guyton (April 3): Sent in from New Bloomfield and Broadheadville, where they were hibernating in houses.

Maryland. E. N. Cory (April 22): Invading houses.

Ohio. T. H. Parks (April 25): Specimens received throughout April with statements that it is annoying in houses, especially in western Ohio and Toledo.

Indiana. J. J. Davis (April 29): Continues to be bothersome in houses. Migration to boxelder trees for oviposition is taking place.

Wisconsin. C. L. Fluke (April 22): Season very late, but boxelder bugs are out.

Iowa. H. E. Jaques (April 18): Annoying in houses.

Missouri. L. Haseman (April 24): More than usual number of complaints owing to boxelder bugs moving out to their summer food plants. On April 13 and 14 in central Missouri they were observed crawling about in numbers on the lawns.

Minnesota. A. G. Ruggles (April 19): Very abundant.

Nebraska. M. H. Swenk (April 15): Complaints of annoyance in and around houses received on March 30, April 3, and April 8 from Douglas, Boone, and Burt Counties, respectively.

Kansas. H. R. Bryson (April 25): More plentiful than for several seasons. Particularly abundant near maple and boxelder trees. They have been feeding on immature seeds fallen from maples since the late freeze.

Oregon. J. Davis (April): Many specimens found in houses, sent in for determination late in March and early in April. Owing to the mild winter, they are more abundant than usual.

CLOVER MITE (Bryobia praetiosa Koch)

Indiana. J. J. Davis (April 29): Reported entering houses and becoming annoying.

Nebraska. M. H. Swenk (April 15): A yard in Box Butte County reported to be heavily infested on March 29.

CLUSTER FLY (Pollenia rudis F.)

New York. N. Y. State Coll. Agr. News Letter (April 15): Very annoying in attics.

Wisconsin. C. L. Fluke (April 22): Season very late but the cluster fly is out.

FIREBRAT (Thermobia domestica Pack.)

New Hampshire. J. G. Conklin (March 23): Specimens received from Nashua.

Nebraska. M. H. Swenk (April 15): Complaint from Lincoln County on April 1 of this pest as occurring in a basement.

SILVERFISH (Lepisma saccharina L.)

New Hampshire. J. G. Conklin (April 18): Specimens received from Lakeport with the report that they were numerous in a house.

A BOOKWORM (Neogastrallus librinocens Fisher)

Florida. E. A. Back (April 8): Book received from Orlando, found infested with this introduced bookworm, known previously to occur in the United States only in Saint Augustine and in Saint Leo, Fla.

CARPET BEETLES (Coleoptera)

New Hampshire (April 25): Specimens of the black carpet beetle (Attagenus piceus Oliv.) received from Manchester on March 20. Adults received from Dover on March 27 and from Concord on April 17.

Nebraska. M. H. Swenk (April 15): A. piceus found infesting a house in Saunders County on March 28.

General. E. A. Back (February 7): Larvae and adults of the furniture carpet beetle (Anthrenus vorax Wtrh.) received from Miami, Fla., where it was infesting clothing in a trunk. Injuring clothing in house in Baltimore, Md., on January 27. Specimens received from Red Bank, N. J., on April 17, from Grosse Pointe Park, Mich., on March 5, from Evanston, Ill., on April 15, and from Leavenworth, Kans., on January 31. First reported from last-named locality over a year ago.

Florida. E. A. Back (April 11): Adults of larvae of a tow bug, Catorama sp., in numbers received from Fort Lauderdale, with statement that they were found in furniture, cutting holes in coverings, and devouring vegetable stuffing.

LARDER BEETLE (Dermestes lardarius L.)

Washington. M. H. Hatch (April 15): Found infesting a warehouse in Seattle. This is a new pest for the State.

ALMOND MOTH (Ephestia cautella Walk.)

Texas. E. A. Back (March 20): Received from house in Waco, where they were reported as emerging in numbers from insulation consisting of cottonseed hulls. (Det. by C. Heinrich.)

TOBACCO MOTH (Ephestia elutella Hbn.)

Virginia. W. D. Reed (April 9): Hibernating larvae found in large numbers in tobacco hogsheads in storage in Richmond, indicating that the insect survived the lowest average temperature on record in Richmond.

C. O. Bare (March 28): A number of females of Microbracon hebeter Say, parasite of the tobacco moth, were taken on this date, flying about the exterior of the open warehouses at Richmond. This is the first activity since December 18.

CIGARETTE BEETLE (Lasioderma serricorne F.)

Virginia. W. D. Reed (April 9): Larvae survived the extreme low temperature at Richmond and were found in large numbers in hogsheads of stored tobacco during February.

TISSUE PAPER BUG (Thylophorus contractus Mots.)

New York. E. A. Back (March 26): Well-grown larvae, pupae, and adults of both sexes found in large numbers devouring chocolate-coated, molasses-candy sticks in New York City.

A MITE (Ophionyssus sp.)

New York. E. A. Back (March): A species said to be a bloodsucking parasite of snakes, received much engorged from pastry department in New York City, infesting candy. (Det. by H. E. Ewing.)

STORED-GRAIN INSECTS

Alabama. F. E. Guyton (March 28): First specimens of Ptinus brunneus Dufts. collected in stored corn at Smith Station. Damage light. (April 5): One specimen of Merizium americanum Lap. found in stored grain at Auburn, the first one taken here.

Arkansas. E. A. Back (April 8): Specimens of spider beetle (P. brunneus) received, with statement that they were crawling about house. (Det. by W. S. Fisher.)

Ohio. T. H. Parks (April 27): About 75 percent of the angoumois grain moths (Sitotroga cerealella Oliv.) now alive in 1939-grown ear corn stored in a slatted crib in Ross County, southern Ohio. The January temperature reached -10° F.

E. A. Back (March 7): Many larvae of Tenebrio molitor L. taken from rock-wall insulation in walls of building, burrowing freely through same but not devouring it.

Kentucky. W. A. Price (April 23): Corn throughout the State was infested with S. cerealella Oliv. during the mild fall of 1939. In some instance the ears showed as many as 80 infested kernels. Also evidence of late infestation of corn in the crib. No emergence nor development has been found in corn brought into the laboratory late in February.

Nebraska. M. H. Swenk (April 15): Specimens of adults of the Indian-meal moth (Plodia interpunctella Hbn.) taken in house in Douglas County, were received on April 4.

Oklahoma. F. A. Fenton (April 27): A sample of wheat screenings from Alva was infested with the rice weevil (Sitophilus oryza L.), the confused flour beetle (Tribolium confusum Duv.), and the saw-toothed grain beetle (Oryzaephilus surinamensis L.).

Idaho. J. R. Douglass (March 27): Samples of grain submitted from an elevator at Wendell on February 27 were found to contain O. surinamensis, S. granarius, T. confusum, and the flat grain beetle (Laemophloeus minutus Oliv.).

INSECTS ATTACKING TIMBERS

- New York. E. A. Back (March 19): Adult weevils of Hexarthrum ulkei Horn found in house in Yonkers, traced to floor boards, badly dry-rotted and honeycombed by burrowing larvae. (Det. by L. L. Buchanan.)
- Virginia. L. A. Hetrick (April 18): An anobiid, Xyletinus peltatus Harr., reported to have injured pine foundation timbers of buildings in Mathews County. (Det. by W. S. Fisher.)
- Mississippi. C. Lyle (April 23): Specimens of the death watch beetle (X. peltatus) sent in on April 4 from Covington County, where buildings were infested. Adults of Lyctus planicollis Lec. received from Coahoma and Leflore Counties, where they had emerged from hardwood floors. Specimens emerged from new desk at State College on April 8. A larva, supposed to belong to the species Eburia quadrigeminata Say, was received from Bolivar County on March 25, with the statement that it was taken from the woodwork of a piano.
- Ohio. E. A. Back (April 6): Dryophthorus americanus Bedel found in large numbers both as larvae and adults in decaying wooden floor laid over cement foundation in a damp basement. (Det. by L. L. Buchanan.)
- Minnesota. A. G. Ruggles (April 19): Powder-post beetles (Lyctus sp.) being noticed more and more in hardwood flooring.
- Washington. M. H. Hatch (March 30): Since the end of February adults of Cynaesus angustus Lec. have been occurring in a residence in Seattle. House searched but no evidence of breeding place has been found.

WHARF BORER (Nacerda melanura L.)

- Maryland. E. A. Back (April 17): Adults found emerging in numbers from flooring of basement apartment and from side wall kept damp from water spilled on it.
- Ohio. E. A. Back (April 5): Received in large numbers in all stages in decaying floor boards laid over a cement foundation.

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THE MORE IMPORTANT RECORDS FOR MAY

Grasshoppers developed rapidly during the month in the southern part of the infested territory, but hatching and development were delayed by inclement weather in the northern part. In California and southern Arizona Melanoplus mexicanus Sauss. is doing considerable damage, and in scattered localities over the entire area it is doing some damage. In the southern part this species is reaching the adult stage and is mating. In the eastern parts of Colorado and New Mexico, the area infested by Dissosteira longipennis Thos., the hatch was almost complete by the middle of the month; however, the weather somewhat delayed development and activity. The hatch of M. bivittatus Say was half completed by the middle of the month in Colorado and just started at this time in northwestern Iowa, southeastern Nebraska, and in Minnesota and the Dakotas. By the 25th of the month hatching was occurring generally over the area and in Sheridan County, Wyo., where this is the predominant species, hatch was half completed. M. differentialis Thos. had almost completed hatch in Arizona by the middle of the month and by the 25th it was causing some injury. The species was hatching in Colorado and the Panhandle of Nebraska by the 25th of the month. Hatching had not started at this time farther north. Camnula pellucida Scudd. is abundant in Orange County, Calif., and Sanpete County, central Utah.

The Mormon cricket has hatched throughout the infested territory. Migrations have started in some places. In Wasco County, Oreg., and Franklin County, Wash., mating and egg laying have started. Light infestations occur in south-central South Dakota and the Panhandle of Nebraska.

Reports of injury by cutworms were received from scattered localities over the country. Considerable damage to cotton occurred in the lower Rio Grande Valley of Texas. The pale western cutworm occurred in outbreak form in western Kansas, through the Texas Panhandle and in eastern New Mexico. The variegated cutworm is occurring in the San Francisco Bay area of California.

The armyworm occurred in destructive numbers in central Oklahoma during the first half of the month. Larvae were collected in two counties in northwestern Mississippi the last week in April, but no damage was reported.

Heavy flights of May beetles occurred over the northeastern quarter of the country. Trees are being defoliated in some places. Damage to cotton by adults was reported from one county in Texas.

Wireworms are injuriously abundant in New York and Connecticut. The prairie grain wireworm is injuring seed potato in North Dakota. The sugar beet wireworm was reported as damaging corn, sugar beets, onions, lima beans, and tomato in southern Idaho, southeastern Washington, and southern California.

An outbreak of Say's stinkbug is occurring in southeastern Arizona, where wheat and barley are being severely damaged.

Most of the chinch bugs had migrated from winter quarters to small-grain fields by the third week in the month. In one county in Iowa the insect was occurring in corn. The insect is sufficiently numerous in parts of Illinois, southern Iowa, southeastern Nebraska, and northeastern Oklahoma to cause considerable injury to small grains and later serious damage to corn, unless prevented by natural or artificial means.

The pea aphid severely injured alfalfa in Arizona, Utah, and Nevada. The attack in Washington and Oregon does not appear so severe as usual. No injury to peas has been reported in the East.

The eastern tent caterpillar is abundant in the northeastern part of the country; however, it is not so abundant as it has been during the last few years.

The codling moth began to emerge on May 6 in southern Indiana, western Kentucky, and southern Missouri, and also in Maryland, although moths were not observed in Virginia, Delaware, and Ohio until the 15th of the month. No emergence has been reported from New York. The cool, rainy weather hindered oviposition in all Eastern and Middle Western localities; however, eggs were observed as early as May 10 and larvae by May 21 in the lower Ohio Valley. The season is early in the Pacific Northwest, moths being observed on April 17 in the Yakima district and on April 22 in the Wenatchee district of Washington. No egg laying reported in the Willamette Valley of Oregon up to May 18.

The fruit tree leaf roller is unusually abundant in New York, Ohio, Indiana, Illinois, and Missouri.

Fruit aphids are unusually scarce throughout the East. The rosy apple aphid seemed to be building up populations slightly in New York, Pennsylvania, Indiana, and Kentucky by the end of the month.

The oriental fruit moth is emerging and a few twigs were found infested in Virginia. Full-grown larvae reported from the Fort Valley, Ga., district. The insect was reported from Texas for the first time, having been discovered on wild plum in the eastern part of the State.

The plum curculio is 3 weeks later than usual at the Fort Valley, Ga., district and the infestation is lighter than usual.

The Colorado potato beetle is appearing on potato and tomato from New York westward to Missouri and southward to South Carolina and Mississippi, as well as in Utah and Washington. Considerable injury is being caused in Missouri and Mississippi.

The Mexican bean beetle is appearing in the Northeast and rather severe infestations are developing in the South.

The bean leaf beetle is more abundant than usual in the South and is present as far north as Illinois.

The boll weevil is unusually scarce throughout the Cotton Belt.

The cotton flea hopper is appearing in considerable numbers in Texas.

Cotton aphids are injuriously abundant in most of the Cotton Belt.

Brood XIV of the periodical cicada is beginning to appear.

Cankerworms are abundant in the Northeast and extend as far west as Nebraska and Kansas.

Aphids on rose reported as injurious in many scattered localities throughout the country.

GENERAL FEEDERS

GRASSHOPPERS (Acrididae)

California. S. Lockwood (May 21): The situation over the entire alfalfa region of the Imperial Valley continues to be serious. Outbreak on approximately 165,000 acres of alfalfa entirely composed of M. mexicanu Sauss. This species is causing all the loss and is the dominant one in the Palo Verde Valley, around Blythe, Riverside County, where they have numbered as high as 50 per square yard of alfalfa. They are now mating, and oviposition is expected within a short time. The devastating grasshopper (M. devastator Scudd.) and the valley grasshopper (Oedaleonotus enigma Scudd.) are destructive to potatoes and water-melons in the cultivated areas around Temecula, Riverside County. In some areas they have numbered 500 per square yard. M. devastator is the principal species on the western side of Kern County, extending from Grapevine to Edison, although O. enigma is also present. These species have numbered 200 per square yard in some sections, although this is considerably higher than the average. Infestations on the western side of Fresno County have not developed as expected. Egg hatch has been affected by adverse weather, and those that have hatched have been disposed of to a marked degree by above-ground predators. Grasshoppers are now developing in serious numbers in Humboldt County, south of Eureka. Two species of Melanoplus and one of Locustana have been observed in the outbreak there.

B. M. Gaddis and assistants (May 12-18): Grasshopper infestations continue to be serious in Kern, San Diego, Imperial, and parts of Merced, Humboldt, and Riverside Counties. Several heavy infestations in the Sacramento Valley are beginning to appear; however, in some areas of the Sacramento Valley and on the west side of Fresno County, many eggs have been destroyed. In the Aliso Canyon area of Orange County, mature Camnula pellucida and nymphs of O. enigma are sufficiently numerous to necessitate poisoning.

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Colorado. (May 12-18): The hatch in the Dissosteira longipennis Thos. area is about 50 percent complete, with 99 percent of the nymphs still in the first instar. It is evident as the hatch progresses, that egg beds cover considerably more area than was expected from the fall egg survey. Week-old nymphs have spread until they cover about twice the area of the original beds; however no definite migrations are apparent as yet. Spotted infestations of M. mexicanus Sauss. are present on idle and abandoned land in Pueblo, El Paso, and Lincoln Counties, with some marginal populations running as high as 75 per square yard. In one coulee bottom 275 nymphs per square yard were found on an acre of land. In Boulder and Larimer Counties the infestations are spotted and generally not alarming, with field populations ranging from less than 1 to 75 per square yard. The infestations are confined principally to

1/ Where no name is given after the State the report is by B. M. Gaddis and assistants.

alfalfa and idle fields at present. The hatch of M. mexicanus, M. bivittatus (Say), Aeoloplus turnbullii Thos., and Aulocara elliotti Thos. is from 50 to 75 percent complete. Camnula pellucida, M. differentialis (Thos.) and M. femur-rubrum (Deg.) have just commenced hatching in these counties. Marginal hoppers are shifting into the fields as they hatch and slight damage is becoming evident in the heavier populated fields. Weather conditions the past week have been unfavorable to the hatching and activity of grasshoppers in the more northern portion of the State. (May 19-25): No new D. longipennis areas other than those shown in the fall survey have developed in the southern portion of the State; however, within known areas new beds are being found. Approximately a 90 percent hatch has occurred in the area as a whole. Populations on May 25 averaged from 500 per square yard in concentrated bands to 50 per square yard in more scattered locations. Adverse weather conditions during the last 2 weeks have delayed hatching and nymphal development considerably. First-instar nymphs are scattering and in many places cover 20 times the area of the original egg beds. Weather conditions, together with bird predatorization, occurring as it did at the height of the hatching period, has resulted in population reductions of as much as 80 percent on some egg beds. In Logan, northern Washington, and Morgan Counties, in northeastern Colorado, populations are generally low and not alarming excepting in several scattered localities. Heavy infestations are present in stubbled-in winter wheat and wheat planted in disked stubble fields in the vicinity of Kelly, in Logan County. Populations there range from 50 per square yard in the fields to 250 along the margins. Hatching of M. mexicanus, M. bivittatus, Aeoloplus turnbullii, Aulocara elliotti, and M. packardii is from 75 to 100 percent complete. M. differentialis and M. femur-rubrum are hatching. Grasshopper movement and feeding have been retarded by the adverse weather and little crop damage has resulted.

Arizona. (May 12-18): In the lower Yuma Valley of Yuma County, grasshopper infestations are spotted and in the crop areas populations range from 5 to 10 per square yard along field margins and grassy areas within alfalfa fields. M. mexicanus and M. differentialis are present, with about 90 percent of the M. mexicanus in the adult stage, whereas 80 percent of the M. differentialis are second and third instars with the remainder in the first and fourth instars. Hatching is thought to be almost complete in this area. In Maricopa County there are numerous, scattered, local infestations with from 20 to 40 hoppers per square yard in most of the farm sections. Most of the M. mexicanus here are in the adult stage, whereas with M. differentialis 70 percent are in the second and third instars and the remainder are in the first and fourth. In the Sunset and Bonita areas of Graham and Cochise Counties where infestations have been severe for the past 3 years, it appears that a lighter infestation may be expected this year. M. mexicanus is the dominant species, with 65 percent in the adult stage. (May 19-25): Infestations continued to be serious in Maricopa, Yuma, and parts of Graham and Cochise Counties. Several heavy infestations of M. differentialis are beginning to appear in the West Chandler and South Glendale districts of Maricopa County. Populations in these areas range from 50

to 200 per square yard and noticeable damage to alfalfa along field margins is appearing. In the southwestern portion of the State M. mexicanus are now mating and many females are filled with fertile eggs. M. mexicanus are approximately all in the adult stage, while M. differentialis are 50 percent first instar, 30 percent second, 15 percent third, and 5 percent fourth. Heavy populations are present in the East Verde River and Tonto Creek areas of northern Gila County.

W. A. Stevenson (May 11): An outbreak in the farming district of Marana, northeastern Pima County, discovered on May 3. Most of the individuals involved were the common desert grasshopper (Trimerotropis pallidipennis Burm.). This species is not considered a serious pest of cultivated crops in this section of the country. As all found were adults on May 6, it is believed that there will be no damage to crops.

C. D. Lebert (May 21): Several migrations of T. pallidipennis observed in Phoenix, Maricopa County, during the first week of May. Extremely abundant and annoying for several days, but no damage to ornamentals was recorded.

New Mexico. B. M. Gaddis and assistants (May 12-18): In the D. longipennis area in De Baca, Chaves, and the Quay area of Quay County, less than 5 percent of the original known infestation remained May 14. The scattered bands present were small, averaging less than 1 acre in size. Ten bands found on May 13 averaged less than 5 acres in area. Populations in the bands average about 500 per square yard. In the Ima school area of Quay County, there are probably 3,000 acres infested with populations averaging 100 per square yard. In the D. longipennis area of New Mexico as a whole, the hatch was 98 percent complete by May 14. In Chaves and De Baca Counties, 15 percent were third instar, 80 percent fourth instar, and 5 percent fifth instar. Where fourth- and fifth-instar nymphs predominate in De Baca County, the bands are definitely migrating when conditions are favorable, but there is no definite consistent direction to the migrations. In areas where first-, second-, and early third-instar nymphs are dominant there is little activity except milling about on, and spreading from, the egg beds. (May 19-25): About 60 percent of the D. longipennis are in the fourth instar, 5 percent in the fifth, and the remainder in the second and third.

Nevada. G. G. Schweis (May 20): Hatching is occurring in many of the counties in the State, and control operations are now in progress.

B. M. Gaddis and assistants (May 12-18): M. mexicanus in Douglas and Esmeralda Counties made up from 75 to 90 percent of the grasshopper populations with nymphs in the first, second, and third instars. In the irrigated areas the hatch is 100 percent complete. In Nye and southern Lander Counties, M. occidentalis is 100 percent hatched. Second to fifth instars are present. In Nye County baiting operations have reduced original populations from 500 grasshoppers per square yard to 50 per square yard. Hoppers are migrating in all directions. (May 19-25): The M. occidentalis are 50 percent in the fifth instar, 20 percent fourth, and 30 percent adult, and rapid migrations are reported now occurring. In the irrigated sections hatch has been retarded in many instances; however it is expected that hatching will

continue more rapidly as the ground dries out.

Utah. G. F. Knowlton and assistants (May 3): Grasshoppers, mostly Melanoplus sp. and largely in the first instar, occur at the rate of from 3 to 5 per square foot in some fields examined in localities in northern Utah. (May 6): Hatching has increased noticeably in fence rows and in some alfalfa fields in Davis and Utah Counties, northern Utah. (May 11): Nymphs, mostly in the second and third instars, numbered 10 to 50 per square yard on idle land adjoining a farm in the Ouray Valley, Uintah County, on May 7. Early maturing species had been winged for several weeks in this area. The heaviest outbreak is of A. elliotti. Hatching is occurring rapidly at Randlett. Reports received of heavy hatching on ranches in Skull Valley, Tooele County, and grasshoppers are becoming abundant in Millard County, beginning to damage alfalfa. Both counties are in western Utah. (May 16): Hatching is taking place in large numbers at Minersville and on parts of Milford flats, both in Beaver County, southwestern Utah. (May 21): Very abundant and beginning to damage crops at Scipio, eastern Millard County. Adults of M. mexicanus, M. packardii Scudd., Arphia pseudonietana Thos., and Hippiscus corallipes Hald. are common now west of Tooele, and crops are being injured. Reported on May 20 that the warrior grasshopper (Camnula pellucida Scudd.) is causing a very serious situation near Ephraim, Wales, and Manti, Sanpet. County, central Utah. Populations of 100 to 1,500 per square yard are present in hatching grounds. (May 28): M. mexicanus is becoming winged on bench land east of Clearfield, at Layton, and at Kanarraville, and adults are common in foothill and range land south of Draper and east of Bluffdale, Utah County.

B. M. Gaddis and assistants (May 19-25): Marginal damage to alfalfa is becoming common in various localities in Salt Lake, Davis, Weber, Millard, and Beaver Counties. M. mexicanus, the dominant species, had reached the adult stage in Tooele County by May 21. On idle lands lying adjacent to cropped areas, rapid drying is causing heavy concentrations of hoppers along field margins. Sea gulls are reported consuming large numbers of nymphs in Davis, Weber, and Box Elder Counties.

Kansas. (May 12-18): North of Dodge City, in Ness County, A. turnbullii were just commencing to hatch during the fore part of the week. In the more southwestern counties of the State south of Dodge City, A. turnbullii were in the second and third instars, confined mostly to small, isolated waste or pasture land. Roadside margins have populations of 20 to 30 per square yard. (May 19-25): Infestations in the uplands of the Dodge City area as a whole are either threatening or severe, with the severe areas spotted and confined more or less to idle or abandoned lands. A severe infestation is present in the Arkansas River Valley from the eastern edge of Ford County to the western edge of Kearney County. Populations range from 100 to 150 per square yard but are limited to the immediate vicinity of the river in cultivated land, being especially heavy in and around alfalfa. Cool temperatures and scattered rains have prevailed over most of the western portion of the State during the week, consequently retarding the development of the hoppers. At present there

are few grasshoppers east of Wichita and heavy populations are not encountered east of Pratt. Most nymphs in the eastern portion of the infested area are still in the first and second instars, while in the southwestern portion of the State, populations have not progressed as rapidly as was anticipated. The dominant species is A. turnbullii. Little movement of populations has occurred and most of the nymphs are still concentrated in pastures and other places having a thistle cover.

Nebraska. (May 19-25): In the Sand Hill area, hatching of M. bivittatus and M. mexicanus was beginning on May 13. M. confucius is in the third and fourth instars in this area and at present is the dominant species hatched. Examination of Daws, Sioux, and northern Box Butte Counties showed infestations to be comparatively light, with the hatch particularly slow in the pine ridge regions. M. differentialis was reported to be hatching in spotted areas in the Republican River Valley of Dundee, Hitchcock, and Red Willow Counties on May 17. Heavy infestations present in southwestern Box Butte, northwestern Morrill, west-central Cheyenne, and southwestern Deuel Counties. Populations up to 175 per square yard along field margins and 75 per square yard in the fields are present; however, except for alfalfa and idle lands, most infestations are marginal. The hatch of M. differentialis has just begun in the Panhandle area of the State. Cool, cloudy, and windy weather has curtailed grasshopper activities and damage is just beginning to show in marginal weeds and grasses. In the central portion of the State, 'hoppers were dispersing from margins several yards into wheatfields and injury to grain was noticeable. In the extreme northeastern portion of the State, grasshopper development has advanced little since last week. The predominating species, M. differentialis, is in the eye-spot stage. Adult M. mexicanus were reported near Oxford, in Furnas County, on May 23. Hatch of the predominating species, A. turnbullii, in the Beaver-Republican Valley area is 60 percent complete. In southwestern Nebraska the infestations are developing rapidly. Heavy mortality of nymphs hatching in worked fields in the Panhandle area has been observed in several instances.

North Dakota. (May 12-18): Hatching of M. mexicanus and M. bivittatus was general throughout the southern counties of the State and in more favorable locations in the northeastern counties. Nymphs of M. mexicanus were reported in the northwest corner of the State, in Divide County, on May 15. Predatorization in the northwestern counties of the State is very evident, with samples showing 4 or 5 pods destroyed by beetle or ground beetles. In some fields populations have been reduced as much as 60 percent. Throughout the north-central portion of the State hatching has been delayed by rains and low temperatures. The majority of the M. mexicanus eggs in this area are in the milk stage, and a general hatch is predicted around May 25. (May 19-25): Cool weather, with scattered rains over most of the eastern portion of the State during the week, permitted only very light hatching in the more favorable areas. No hatching was observed in the northern tier of counties and most of the M. mexicanus eggs in these counties are still in the

coagulated and eye-spot stage. M. mexicanus and M. bivittatus were hatching in both fields and marginal areas in the southeastern half of the State, while in the extreme southern counties, the hatch has been in progress for 2 weeks and the above-mentioned species are in the first and second instars, while M. confusus is in the second and third stage. The hatch in the southern counties is estimated to be less than 25 percent complete. Populations range from 1 to 10 per square yard in the fields and 1 to 50 nymphs per square yard along the margins and roadsides. It is expected that the hatch in this area will be complete by June 10. In the northwestern portion of the State egg development up until May 22 was greatly retarded by cool, rainy weather; however, during the last few days temperatures have risen well into the eighties and eggs are beginning to hatch throughout the area. About a 60 percent hatch of M. bivittatus and 20 percent hatch of M. mexicanus has occurred. Predators, namely ground beetles, blister beetles, beetflies, and wireworms, have been quite active and have destroyed an estimated 25 percent of the eggs in some parts of this area. In the southwestern portion of the State, in Oliver, Mercer, Sioux, and Grant Counties, approximately 1 percent of the grasshoppers have hatched. Most of M. bivittatus and M. differentialis eggs are expected to hatch within a week, whereas M. mexicanus probably will require an additional week before hatching. For the State as a whole it is estimated that the hatch is less than 10 percent complete.

South Dakota. (May 12-18): M. bivittatus was hatching generally on May 16 in Beadle County and the areas southward. Northward the weather has been too cold to permit an extensive hatch. M. confucius is in the second and third instars and is now the dominant, nymphal species already hatched; however, M. differentialis forms about 70 percent of the total infestation on all field margins. Differentialis is expected to begin hatching along the southeastern corner of the State between May 25 and June 1. In this area M. confucius is 100 percent hatched and M. bivittatus 25 percent hatched. M. mexicanus is not present in any numbers. The total hatch in southeastern South Dakota is not over 15 percent along roadsides and field margins. Nymphal populations in the heaviest marginal infestations average from 50 to 100 per square yard. In the western portion of the State development, as well as hatch, has been held back by inclement weather. M. mexicanus and M. bivittatus are approximately 98 percent in the first instar and 2 percent in the second. Infestations are scattered and confined largely to alfalfa fields and margins, with M. mexicanus making up about 90 percent of the populations. (May 19-25): Cool and cloudy weather prevailed over the eastern part of the State throughout most of the past week and apparently retarded grasshopper development in this area. Very little damage to crops is noticeable. Most of M. mexicanus are in the first instar with M. bivittatus developing rapidly. -

Montana. (May 12-18): A light hatch of M. mexicanus was reported in Hill and Liberty Counties on May 15. Cool weather, however, has kept soil temperatures down and confined hatching for the most part to roadsides and field margins. A 30 percent hatch also was reported May 16 at Fort

Benton, in Chouteau County. Egg development on the whole in the northern portion of the State has advanced well into the segmentation stage. Cool weather has retarded the general hatch and with the alternate cool and moderately warm days, spasmodic hatching may occur over a 30-day period. No hatch is reported in Phillips, Blaine, Wibaux, Fallon, Carter, Roosevelt, Dawson, Richland, or McCone Counties. Hatching began in Fergus County on May 14 and was becoming general by May 18. (May 19-25): On May 23 a general hatch of M. mexicanus was taking place in Hill County, the hatch ranging from 5- to 90-percent complete, depending on soil conditions. In one area north of Gildford where a 90-percent hatch occurred, marginal damage amounting to 1 rod had occurred in some wheatfields. Where hoppers had hatched in the fields, 50 percent plant damage had occurred in wheat planted in the spring plowing. Grasshopper concentrations of 1,000 per square yard along marginal lands, 150 per square yard in stubble, and 75 per square yard in the fields were present. A 90-percent hatch of M. mexicanus had occurred in Fergus County by the close of the week and nymphs were beginning to spread from field margins. Fifty-percent damage had occurred 1 to 4 rods into spring wheat and scattered fields. Concentrations up to 10,000 per square yard were present along margins of fields but this condition was not uniform. Populations of from 25 to 250 per square yard were present in scattered fields of spring wheat but no infestations were present in winter wheat. A 50-percent hatch was reported from Portage to Fort Benton and eastward in Chouteau County, with populations of 75 per square yard confined mostly to field margins. The hatch from Fort Benton north to Chester ranges from 80- to 100-percent complete, with populations of 50 to 500 per square yard in field margins and with marginal damage evident in the southeastern part of Liberty County. Hoppers in this area have moved 6 rods into winter wheat.

Wyoming. (May 12-18): Observations in southeastern Wyoming indicate that infestations in Laramie County have been light and scattered, with a hatch of about 5 percent and that in Goshen County infestations are confined largely to alfalfa fields, where populations average about 45 per square yard. The general hatch of M. mexicanus was under way this week, after being delayed by inclement weather. Mexicanus represented about 90 percent of the grasshoppers present. Infestations in the Black Hills area of Wyoming are scattered and confined to alfalfa fields and margins. In Crook County very little hatch has occurred and development has been retarded by weather conditions. (May 19-25): Intermittent warm and cool weather this week prevented a rapid hatch. Heaviest infestations observed to date are in Sheridan County, with the hatch of M. bivittatus estimated to be about 50 percent complete. Populations in Goshen, Platte, Laramie, Weston, Campbell, and Crook Counties are light. Infestations in Goshen and Laramie Counties are still confined principally to alfalfa fields, with M. mexicanus the dominant species present. The hatch is probably from 75 to 85 percent complete in these 2 counties and 50 percent complete in Crook and Weston Counties. No crop damage has been reported to date.

Minnesota. (May 12-18): Examinations reveal that very little reduction in grasshopper populations can be anticipated from egg predatorization during the winter. Reductions from this source, it is believed, will not be greater than 10 percent. Species considered to be M. bivittatus and M. packardii have hatched in many sections of the State; few M. mexicanus eggs have hatched and hatching of M. differentialis is not expected to occur until the last week of May. (May 19-25): The hatch of M. mexicanus and M. bivittatus was general during the week throughout the northwestern portion of the State. In the counties of Marshall, Polk, Norman, and Clay, in western Minnesota, there was little increase in hopper populations during the last week, because of the cold and rainy weather. Nymphs were present from Crookston to Moorehead in light, sandy soil, or dry fields with thin vegetation, with populations ranging from 1 to 10 per square yard in the fields and margins. Egg predators have reduced eggs from 20 to 25 percent in Pine and south St. Louis Counties. The infestation in the western tier of counties in the southwestern portion of the State is general, with populations of 30 to 50 M. bivittatus per square yard fairly common. Hatch of M. bivittatus is about 50 percent complete, with 95 percent of the nymphs in the first instar. M. differentialis is expected to begin hatching within a few days.

Iowa. C. J. Drake (May 21): The two-striped grasshopper (M. bivittatus) and the lesser migratory grasshopper (M. mexicanus) started hatching at Ames on May 13. Survey in western Iowa from May 13 to 16 showed that about 10 percent of the eggs had hatched. Cool weather and heavy growth of vegetation are delaying hatching. Heavy to moderately heavy populations occur two to three counties deep along the Missouri River from Pottawattamie to the northern part of Iowa.

B. M. Gaddis and assistants (May 12-18): M. bivittatus and M. mexicanus were reported beginning to hatch in northwestern Iowa on May 15. The hatch appeared to be general along the Missouri Valley from the mouth of the Platte River northward. (May 19-25): M. bivittatus was hatching rapidly during the last week in the western and northwestern section of the State, with populations ranging from 20 to 150 per square yard and 90 percent in the first instar.

Missouri. L. Haseman (May 21): Young 'hoppers observed beginning to hatch in some areas in southern Missouri. In central and northern Missouri, where little trouble is expected, hatching has not been observed.

North Dakota. J. A. Munro (May 23): Hatching has barely started in the Fargo area, M. bivittatus and M. mexicanus being most prevalent. Some hatching observed in the sandhills area of southeastern North Dakota a week ago. Less than 1 percent of the eggs in a field near Langdon were hatched, M. mexicanus predominating. In 20 square-foot samples of soil taken from various points in a field, 28 egg pods of M. mexicanus were found. Only 2 of the samples did not have egg pods.

Wisconsin. E. L. Chambers (June 1): First report of hatching of M. bivittatus in Chippewa County on May 28, about 2 weeks later than normal. Observed in the first, second, and third instars.

Michigan. B. M. Gaddis and assistants (May 19-25): Hatching of M. mexicanus occurred in the infested areas of central Michigan during the week.

Oklahoma. C. F. Stiles (May 22): Infestation apparently very spotted over the western side of the State, with local outbreaks. The dominant species are Aulocara elliotti, M. differentialis, M. bivittatus, and M. packardii.

B. M. Gaddis and assistants (May 19-25): In Cimarron and Texas Counties, in the Panhandle of Oklahoma, idle and waste land appear to be most heavily infested, populations averaging about 30 per square yard. In weedy wheat, 5 percent leaf damage has occurred in thin stands, with less in heavy stands. Clean wheat is practically free from 'hoppers. The hatch is practically complete in some areas but apparently just beginning in others. Adverse weather the last 2 weeks has delayed grasshopper development. Infestations which were first thought to be quite spotted are becoming more and more general as the late hatch progresses.

Texas. (May 12-18): In the Texas Panhandle Counties of Dallam, Hartley, Moore, and Sherman, M. mexicanus is the dominant species; however some A. elliotti and M. packardii are present. Nymphs of these three species are to be found in all instars from the first to the fifth, with the largest percentage in the first and second instars. (May 19-25): M. mexicanus heavily infests the counties of Dallam, Hartley and Sherman, making up about 60 percent of the population. Nymphal concentrations range from 5 to 60 per square yard in idle lands, along roadsides, and in draws in rangeland areas. In the crop-hopper area of the eastern Texas Panhandle, nymphs and adults number from 30 to 50 per square yard along field margins of cotton and other row crops and in pasture land adjacent to crop land. The dominant species present are A. turnbullii, M. packardii, and A. elliotti. In some areas of Stonewall and Haskell Counties, considerable damage has been done to young cotton plants. A. elliotti and M. confusus were observed mating in Haskell County.

A. J. Chapman (May 25): Noted in unusual numbers on the range land in Presidio County.

MORMON CRICKET (Anabrus simplex Hald.)

Montana. B. M. Gaddis and assistants (May 5-11): Crickets began to hatch in Big Horn County about the 15th of March. The hatch is now complete in all areas, with the exception of the Pryor and Big Horn Mountains. It is believed that there will be approximately 1,500,000 acres of heavily infested lands in Big Horn County this season. Crickets were reported hatching in Chouteau County the first part of this week. Probably some 65,000 to 70,000 acres will be heavily infested in Chouteau County. The first hatching of crickets was reported in Sanders County on March 2 and crickets are now in the third to fifth instars. About 150,000 acres of land are moderately and heavily infested in the county. In Yellowstone County, crickets are now in the second to fourth instars; they were reported to have commenced hatching about March 28. About 100,000 acres of lands are heavily or moderately infested. In Carbon County 32,000 acres are estimated to be infested. In Lake County it is expected that approximately 6,000 acres will be moderately or heavily infested. About 12,000 acres of heavily to moderately infested lands are located in the southern part of Phillips County in the vicinity of Landusky. It was thought that Sweet Grass County had been entirely cleaned of crickets; however, it is now reported that an infestation has appeared this spring in an area where there were no crickets last year. Fergus, Judith Basin, Stillwater, Golden Valley, and Musselshell Counties are believed to be almost free of crickets. It appears that in areas in Montana where large numbers of eggs were found last fall, the infestation at present does not seem to be very heavy. Examples of this are the Camas Prairie area of Sanders County and the south Hardin area in Big Horn County. On the other hand, places that apparently had no crickets last year are showing heavy infestations. (May 19-25): Larger numbers of Mormon crickets are appearing and considerable migration is occurring in Sanders County. The infestations in Yellowstone County appear to be scattered, with populations light. Very few migrations have been noticed in Big Horn County.

Idaho. (May 5-11): Cricket populations in Payette County are somewhat below anticipations. In some portions of Gem County the hatch has not been large, ranging from 25 to 80 percent. In other parts of the county large populations were present just prior to heavy spring rains, but some bands disappeared after the rains. Large cricket populations are present in some areas of Washington County. Cricket populations make the situation in the Midvale area at present especially acute. Migrations from the lower Crane area are now taking place. Crickets are not present in Twin Falls County in as large numbers as was anticipated by the fall survey. (May 19-25): Adults were reported in the western part of the State, in Washington County, on May 16. In the eastern part, in Clark and Fremont Counties, the hatch is now complete. Adult crickets were reported in Madison County on May 24.

Wyoming. (May 5-11): Crickets in most areas are now in the second and third instars; however, in lower elevations in Hot Springs County some crickets were observed in the fourth and fifth instars. An extensive

infestation exists in Crook County which, from the standpoint of potential crop damage, is more severe than in any other county in the State. The hatch is practically complete at this time and most crickets are in the second instar. The infestation in the Owl Creek Mountains of Hot Springs County is extensive and, though population counts are variable, the infestation as a whole may be classed as moderate. Most infestations now are from 1 to 2 miles from crop lands. Very light infestations exist over most of Sheridan County and crickets in the lower areas are now in the second and third instars. (May 19-25): Adult crickets reported at the lower elevations in Hot Springs County and definite migrations are occurring there, but crickets have not reached crop lands.

Utah. (May 5-11): The cricket hatch has been very high, with few infertile or parasitized eggs. Numbers in various areas this spring correspond closely to what was expected from the fall adult and egg survey.

G. F. Knowlton and H. F. Thornley (May 11): Mormon cricket outbreak on Government Creek, in Tooele County. In the Government Canyon outbreaks in Utah County, and near Tintic, in Juab County, are largely in the third to sixth instars. Nymphs in the Hassell's Ranch area of Juab County outbreak are second to fifth instars. Crickets are moving to higher elevations in Juab and Tooele Counties.

Nevada. B. M. Gaddis and assistants (May 5-11): A general hatch has occurred on all egg beds below 7,000 feet in elevation. The bands of crickets are small, except in areas where little or no control work has been done previously. A certain amount of sterility and parasitization of eggs is present in the older infested districts. The largest infestations appear to be found east of Wells near Oasis, in Elko County. The remainder of Elko County, with the possible exception of the Deeth and Midas areas, is infested with smaller bands than usual. Heaviest infestations, it appears, will be present in Eureka County. Only small bands of crickets are present in the areas where control work was carried on last year at McDermitt. (May 19-25): Most crickets in Elko County are now in the sixth and seventh instars and in the adult stage. In Eureka County, third- to seventh-instar crickets are present.

Oregon. (May 5-11): Hatch in the lower elevations in the Pine and Eagle Valleys of Baker County is now complete. Crickets are just beginning to emerge from egg beds at the higher elevations. Definite migrations have been observed especially in the dusted areas. Populations range from 5 to 75 per square yard. In Gilliam County only occasional first-instar nymphs are found and it is apparent that the hatch is almost complete there. The hatch in Umatilla County is not yet complete, crickets ranging from the first instar to the fifth. To date only 3 bands of crickets have been located, with populations ranging from 5 to 30 per square yard. Mormon crickets and coulee crickets (Perenabrus scabricollis Thos.) in Wasco and Jefferson Counties ranged from first instar to adults on May 1. The hatch is complete, except at the higher elevations. In the unhatched areas all eggs appear to be viable. The infestation in the Warm Springs area in Wasco County is exceedingly heavy, with from 10

to 150 crickets per square yard. Migrations have not been definite at any time, as the weather conditions have not been favorable and vegetative growth has been good, tending to hold the crickets near the hatch beds. The general trend in Malheur County this week is the moving of crickets slowly back into the foothills from the canyons and lower areas. (May 19-25): Crickets at the lower elevations throughout the infested areas are in the adult stage and mating and oviposition is taking place in Wasco County. First-instar Mormon crickets reported at some of the higher elevations in Baker County.

Washington. (May 5-11): The cricket hatch in Franklin County is now complete, with crickets ranging from fourth to sixth instar and from 5 to 50 per square yard. The infestation is of about the same extent as in 1939. Crickets in Klickitat County range from the first instar to adults and from 5 to 50 per square yard in the canyons. Hatch is practically complete. (May 12-18): In Klickitat County adults first were observed on May 5, crickets on that date ranging from first instar to adult stage. The hatch is not yet complete. (May 19-25): Approximately 95 percent of the crickets in Franklin County are in the adult stage, with the remainder in sixth and seventh instars. Populations range from 16 to 38 per square yard. Migrations are occurring only in the early hours of the morning.

South Dakota. (May 5-11): First-instar Mormon cricket nymphs at the rate of 1 per square yard reported present along a field road 1 mile west of Lyman, in Lyman County. (May 19-25): The infestation in Todd and Mellette Counties is reported to be light and scattered. Fourth-instar crickets reported in Jones County. In an area located 5 miles south of Draper, 50 crickets per square yard were reported in a band 1/2 mile wide by 2 1/2 miles long.

Nebraska. (May 19-25): Mormon crickets reported in the following counties: Sioux, Scottsbluff, Banner, Kimball, Cheyenne, Deuel, Garden, and Morrill.

CUTWORMS (Noctuidae)

New York. N. Y. State Coll. Agr. News Letter (May 13): Spotted cutworms (Graphiphora c-nigrum L.) numerous in a strawberry planting of 1/2 acre in Suffolk County, eastern New York. Nearly one-quarter of the plants defoliated.

Delaware. L. A. Stearns (May 21): Recently set tomato plants damaged at Camden, and tomato and pepper plants at Bridgeville.

South Carolina. F. F. Bondy and C. F. Rainwater (May 10): Larvae, presumably Agrotis vetusta Walk., very numerous, and about 40 acres of cotton destroyed near Sumter, Sumter County, on May 8. (Det. by C. Heinrich.) (May 11): A field of cotton in Florence County found infested on May 8. This field consisted of 40 to 50 acres and the damage was so severe that the cotton had to be planted over.

C. F. Rainwater (May 17): Cutworms, A. ypsilon, found severely injuring seedling cotton on the Experiment station farm at Florence on May 15. They are completely ruining the stand of cotton in the cover-crop test, where Austrian peas were planted in the fall of 1939 and turned under this spring. Very numerous in this particular field, but just across a field road, where no winter cover crop was planted, there is no sign of injury. (Det. by C. Heinrich.)

Mississippi. C. Lyle and assistants (May 25): Reported as serious pests in vegetable and flower gardens in the northeastern part of the State. A number of requests for control measures reported in the southeastern part of Mississippi.

Tennessee. L. B. Scott (May 23): Moderate damage to tobacco, cabbage, and tomatoes in north-central Tennessee, although abundance is less than normal.

Texas. R. E. McDonald (April 29): In the river-bottom section of Starr County cutworms and other insects have inflicted severe damage in many cotton-fields.

Missouri. L. Haseman (May 21): A number of complaints received from different parts of the State since the middle of May. Some garden plants at Columbia cut off recently, but infestation in Missouri apparently not so severe as usual.

Utah. G. F. Knowlton (May 10): Army cutworms (Chorizagrotis auxiliaris Grote) are defoliating range plants, shadscale and greasewood, over 200 acres west of Ephraim. (May 17): Reports of injury to gardens, alfalfa, and wheat received from northern Utah throughout the month; serious damage reported.

PALE WESTERN CUTWORM (Agrotis orthogonia Morr.)

General. H. H. Walkden (May 25): Large acreage of wheat and spring barley destroyed by the pale western cutworm (Agrotis orthogonia Morr.) in western Kansas during April and May. As no barley is grown in New Mexico and the Texas Panhandle, damage there was limited to wheat.

VARIEGATED CUTWORM (Peridroma margaritosa Haw.)

California. S. Lockwood (May 21): Considerable damage done to purple vetch in the Half Moon Bay area of San Mateo County. Reports received to the effect that the infestation extends over approximately 1,000 acres.

AN ARMYWORM (Prodenia praeifica Grote)

California. A. E. Michelbacher (May 22): Collected in all the alfalfa fields surveyed in the San Joaquin Valley. Up to 12 collected per 100 sweeps. Possible that it may occur in destructive numbers.

ARMYWORM (Cirphis unipuncta Haw.)

Maine. J. H. Hawkins (May): First specimens taken on May 16 at Orono.

Mississippi. C. Lyle and assistants (May 25): Larvae collected from oatfields in Leflore and Sunflower Counties the last week in April. No serious injury caused.

Oklahoma. C. F. Stiles (May 22): Reported from Grady, Kingfisher, Logan, and Pottawatomie Counties during the last 10 days. Control operations under way in Grady County for 2 weeks with excellent results. Many larvae have reached maturity and are pupating, so no serious damage is expected.

MAY BEETLES (Phyllophaga spp.)

Maine. J. H. Hawkins (May 16): Flight at South Paris is apparently the heavy one of the 3-year cycle.

Vermont. H. L. Bailey (May 23): First adult noticed on May 15 about lights at Montpelier, Washington County, central Vermont.

Massachusetts. A. I. Bourne (May 24): Adults reported as extremely abundant under sod in golf courses. Emergence had not taken place but they were ready for emergence and flight on the first warm night.

New York. N. Y. State Coll. Agr. News Letter (May 6): Big flight expected in many parts of New York. Counts of beetles in the soil have shown as many as 100,000 per acre in some areas.

Pennsylvania. H. E. Hodgkiss (May 25): Adults of P. fusca Froel. were flying at State College on the evenings of May 6 and 7. Emergence general in the State.

Georgia. T. L. Bissell (May 8): Two small pecan trees at Griffin have been fed on by P. hirticula Knoch for several nights, the beetles stripping the new leaves. (May 11): Numerous beetles are coming to light traps at Experiment, central Georgia. P. hirticula has been found feeding on pecan.

Mississippi. C. Lyle (May 25): Injury to oak in Chickasaw County and to pecan trees in the northwestern part of the State. Specimens of P. bipartita Horn received from De Soto County early in May, with information that they were feeding on pecan trees.

Tennessee. G. M. Bentley (May 23): Heavy emergence in the vicinity of Memphis, Shelby County, on May 6.

Ohio. T. H. Parks (May 26): Reported as cutting off oak leaves and devouring foliage of trees in Madison County, 25 miles west of Columbus. Specimens brought in from Fairfield County, with report that they were defoliating an acre of raspberries, were P. fervida F., P. fraterna Harr. and P. hirticula. (Det. by C. R. Neiswander.)

- Indiana. L. F. Steiner (May 2): Unusually abundant in Vincennes during the last few days.
- Illinois. A. F. Satterthwait (May): P. implicita Horn was taken in Japanese beetle traps at Urbana-Champaign on May 13. It was the first May beetle collected this year.
- Kentucky. W. A. Price (May 25): Slight stripping of pin oaks caused on some farms in the Kentucky Inner Bluegrass Region early in May. Cold nights prevented heavy flights during the critical period, so damage was light.
- Michigan. R. Hutson (May 21): Two-year-old white grubs reported in several localities in southern Michigan. Specimens taken at Leslie proved to be P. fusca.
- Wisconsin. C. L. Fluke (May 20): White grubs reported as damaging lawns in the eastern and southern parts of the State.
- Iowa. H. E. Jaques (May): White grubs found in southern and western counties of Iowa.
- Missouri. L. Haseman (May 21): Flights of two or three different species common throughout central Missouri. Not so abundant as in some years.
- Nebraska. M. H. Swenk (May 17): Inquiry as to control of white grubs, found feeding on the roots of strawberry plants, received from Sarpy County on April 29.
- Texas. P. A. Glick (May 20): Adults of P. lanceolata Say found doing considerable damage to a field of cotton about 15 miles north of Waco, McLennan County. The grower says that about 50 percent of his cotton has been killed. He estimated that there are about 3 beetles per linear foot of cotton row. (Det. by E. A. Chapin.)
- Utah. G. F. Knowlton (May 25): Brown adults are now in flight. Grubs damage potato each year north and east of Panguitch.

GREEN JUNE BEETLE (Cotinis nitida L.)

- Kentucky and Tennessee. L. B. Scott (May 23): Unusually scarce in the Clarksville area of north-central Tennessee, and only slightly less so in the vicinity of Lexington, Ky. Infestations confined to small areas of very rich soil in Tennessee, only an occasional grub being found in tobacco plant beds. Plant beds in Kentucky lightly infested.
- Georgia. T. L. Bissell (May 4): On May 2 a severe case of injury to a lawn in Griffin, central Georgia, by grubs was observed. Bermuda grass was dying, but weeds not harmed. Several grubs found at depth of 6 inches. On the same day damage was reported from Fort Gaines, southwestern Georgia, doubtless caused by the same insect.

ASIATIC GARDEN BEETLE (Autoserica castanea Arrow)

North Carolina. I. M. Hawley (May 17): Specimens collected at Biltmore on May 7. (Det. by W. H. Anderson.)

JAPANESE BEETLE (Popillia japonica Newm.)

Connecticut. J. P. Johnson (May 20): Grubs left hibernation quarters about May 10-12, moving into the upper inch of soil to resume feeding. Very abundant in many cities and towns.

New Jersey. E. Kostal (May 7): Larvae moderately abundant in the upper layer of sod and garden land at Morganville, Monmouth County; not so much lawn damage as usual.

WIREWORMS (Elateridae)

Maine. J. H. Hawkins (May 6): No crops planted in the vicinity of Holden, but many wireworms, Agriotes mancus Say, were present in sod of grass-land examined.

Connecticut. A.W. Morrill, Jr. (May 21): Emergence of Limonijs agonus Say in moderate numbers noted. Emergence started at the usual time, early in May, but not in numbers usually found at this time of year.

New York. N. Y. State Coll. Agr. News Letter (May 20): Adults, probably the eastern field wireworm, noticed in large numbers in a field being sown to oats in western New York. None found in adjoining field of rye on May 13. In Monroe County beetles have been observed in rather large numbers this week whenever the temperature rose. (May 27): Damage is becoming more and more severe in Richmond County, eastern New York. Beets, lettuce, cabbage, and cauliflower infested. One bed of romaine will have to be plowed under, owing to damage.

South Carolina. F. F. Bondy and C. F. Rainwater (May 18): Infestation reported on the Experiment Station Farm in Florence County. A cover crop was turned under prior to planting.

Louisiana. L. L. Neveu (May 22): Specimens of click beetles found on flax.

Iowa. H. E. Jaques (May): Infestations found generally throughout Iowa, particularly in the western and southern parts.

Nebraska. M. H. Swenk (May 17): Reported as infesting a garden on a creek bottom in Keyapaha County on April 24.

Oklahoma. F.A. Fenton (May 24): Damage to corn reported from Tecumseh.

North Dakota. J. A. Munro (May 23): Recently planted potato field examined today near Saint Thomas, Pembina County, and 50 percent of the seed pieces were being fed on by wireworms. The prairie grain wireworm (Ludius aereipennis Kby.) predominated, one other unidentified species

being present in small numbers. Field had been in summer fallow the previous year. (June 1): A few fields of wheat in the vicinity of Finley, Steele County, observed to have been practically destroyed by larvae of L. aereipennis.

Idaho. J. R. Douglass (May 18): Several complaints received of severe damage to beans and beets in Twin Falls County.

F. H. Shirck (May 21): On May 20 damage by L. californicus Mann. to seed of recently planted corn was noted at Parma, Canyon County. Some stands of sugar beets are also being injured. Adults active since the middle of April, and some flight by egg-bearing females noted as late as May 19, although indications are that practically all of the eggs have been laid.

Washington. M. C. Lane (May 17): On a farm at Walla Walla 4 acres of onions entirely destroyed by L. canus Lec.

K. E. Gibson (May 17): L. canus observed feeding on sugar beets and onions in experimental plots at Walla Walla.

California. M. W. Stone (May 12): Melanotus longulus Lec. found attacking lima beans on nonirrigated hillside plantings near Somis, Ventura County. About one out of every eight beans examined was infested. Severe damage by L. californicus observed in a number of fields. Sifting of bean rows in cover-crop plots near Somis showed an average of two and one-half per foot of row, or one per bean planted.

R. E. Campbell (May 25): L. californicus caused severe damage in Orange County in a 20-acre field of tomatoes, at least 20 percent of the plants being killed and 50 percent of those remaining damaged. Several wireworms found feeding in the root and stem of most of the plants, one plant having 27 in it. In several fields of lima beans near Gardena, Los Angeles County, this species attacked the sprouting beans and killed over 50 percent of the plants. These fields had been in alfalfa for 4 years.

WHITE-FRINGED BEETLE (Pantomorus leucoloma Boh.)

General. L. J. Padget (April 30): First damage of the season noticed on about April 26 in a garden near Drewry, Ala., where larvae were observed feeding on corn; and at this time heavy larval damage was reported on approximately 2 acres of corn at Glendale, Fla. No other reports received.

A BLISTER BEETLE (Pomphopoea aenea Say)

Tennessee. G. M. Bentley (May 8): Specimens of blister beetles, which occur each spring in large quantities on ironwood, found 1,600 feet above sea level in the Great Smoky Mountains National Park, in the Gatlinburg section. (Det. by H. S. Barber.)

Alabama. F. E. Guyton (April 22): Found in large numbers on a cherry-laurel tree at Auburn. Damage light.

SAY'S STINKBUG (Chlorochroa sayi Stal)

Arizona. V. L. Wildermuth (May 23): A heavy outbreak was found in the upper Gila Valley, Graham County, on May 8. Attention first called to this bug, when they were observed in a migratory flight coming from the rapidly drying range of the foothills of the Graham Mountains into the developing grainfields of the irrigated valley. Several fields examined, and populations found extremely heavy. One 20-acre wheat-field contained from 4 to 6 bugs on every head, or many hundred per square yard. It is estimated that damage to wheat and barley crops will be heavy. Area visited the following week, and it is reported that sweeping counts in the most heavily infested field showed an average of 59 bugs per net stroke. The largest number taken in a single stroke was 225, and 19 bugs were found on 1 wheat head. Migration began about May 1, and the bugs had apparently developed on filaree in the surrounding range area. Present infested area extends from Fort Thomas on the west to Solomonsville on the east, a distance of approximately 30 miles. Native ranchers report that a similar outbreak occurred 25 years ago. The present one is the heaviest and most widespread infestation of pentatomids ever recorded by anyone of the Tempe laboratory. Counts showed only $1\frac{1}{2}$ -percent parasitization. These bugs constitute a serious threat to the alfalfa-seed and cotton crops in this valley, if normal development continues.

Utah. G. E. Knowlton (May 17): Collected on weed hosts in a number of localities in northern Utah.

C E R E A L A N D F O R A G E - C R O P I N S E C T S

WHEAT AND OTHER SMALL GRAINS

CHINCH BUG (Blissus leucopterus Say)

Illinois. W. P. Flint (May 21): Flight from hibernating quarters to small grain has occurred. Since this flight the weather has been mostly very cool, with considerable rain, although not many bugs have been killed. Sufficient numbers remain to cause moderate to heavy infestations in some places, provided it is dry late in May and early in June. More abundant in oats than in wheat. Eggs being laid but no young bugs found.

Iowa. C. J. Drake (May 21): Winter mortality was highest in the northern parts of the infested areas and very low in the more heavily infested southern part of the State. A survey in March and during the first few days of April showed an average mortality of from 20 to 25 percent in southern Iowa and about twice as high in the extreme north. Migration from winter quarters to small grain interrupted a number of times by cool weather. At present migration is not complete, and considerable numbers have been flying on warm days during the last week, most of the

flights being in a somewhat northerly direction. A large field of corn in the southern part of Marshall County reported as infested with bugs which had settled there during the spring flight. Population averaged from 10 to 12 per cornstalk. (May 23): Surveys made during the last 2 days in Clarke, Polk, and Warren Counties. Infestation in small grain ranged from 2 to 4 bugs per square foot to as high as 25 or 30 in many oat- and barleyfields. Wheat generally more heavily infested, and counts ran from 15 to 75 or 100 per linear foot of grain in drill row. In some fields in the southern parts of Polk and Warren Counties, the population ran as high as 100 per stool of wheat. In 1 field in southwestern Warren County 8 percent of the barley had been destroyed by adults. Population in this field averaged between 15 and 20 bugs per plant. A number of oatfields in this part of the county showed damage of from 1 to 3 percent. Egg laying has just started. Migration not quite complete. Situation apparently very serious throughout a large part of southern Iowa, especially the southwestern part.

Missouri. L. Haseman (May 21): Bugs apparently have not all reached small grains throughout central and northern Missouri, as infested fields are rather spotted. In central Missouri oviposition has begun but apparently no eggs have hatched. The recent rainy spell was favorable to crops and held back bug activity.

Nebraska. M. H. Swenk (May 17): Inquiries as to the situation received late in April and early in May from Richardson to Douglas Counties, in southeastern Nebraska. A survey in May showed a heavy population in the small-grain fields in this area.

Kansas. H. B. Hungerford (May 20): Bugs have come out of winter quarters in considerable numbers in the vicinity of Lawrence.

Oklahoma. C. F. Stiles (April 30): A survey conducted last week throughout Tulsa, Wagoner, Mayes, Muskogee, Okfuskee, and Noble Counties, showed that the number of bugs per linear foot of drill row ranged from 0 in all land planted to oats to around 30 in a few fields of barley. Infestation heaviest in Muskogee and Okfuskee Counties. (May 22): Infestation throughout the State seems to be very spotted, and many fields of barley are seriously infested, whereas nearby fields of ~~wheat~~ and ~~oats~~ are practically free. Control measures necessary to prevent damage to corn and grain sorghums.

F. A. Fenton (May 24): First generation of nymphs is now developing in small grains, but the bugs have not started moving into cornfields.

BLACK GRAIN STEM SAWFLY (Trachelus tabidus F.)

West Virginia. E. J. Udine (May 23): Adults noted on wheat today at Kearneysville.

EUROPEAN WHEAT STEM SAWFLY (Cephus pygmaeus L.)

Pennsylvania. E. J. Udine (May 26): Adults are flying in abundance in wheat plots at the Carlisle laboratory.

WHEAT JOINTWORM (Harmolita tritici Fitch)

West Virginia. E. J. Udine (May 23): Abundant at Kearneysville. Eggs being laid on wheat today.

HESSIAN FLY (Phytophaga destructor Say)

Pennsylvania. E. J. Udine (May 6): Eggs and adults noted in the vicinity of Carlisle today. Oviposition very late this year.

CORN

CORN EAR WORM (Heliothis armigera Hbn.)

Georgia. T. L. Bissell (May 11): Two moths caught at a light in Experiment, central Georgia, on May 8 and 9. No larvae observed. (May 21): At Experiment two moths found on corn and a great many eggs, believed to be of this species, as well as one small larva.

Mississippi. G. L. Bond (May 25): Larvae have become numerous in the coastal counties during the last 10 days and are damaging corn by feeding in the bud.

Louisiana. L. L. Neveu (May 22): Abundant on flax.

Texas. F. L. Thomas (April 15): Most of the flax acreage in the State extends from the lower Rio Grande Valley north and east to Bexar and Wharton Counties. Reported that late-planted flax has been attacked in most of this area, in which 17,011 acres were planted in 1939. Approximately one-third of the seed pods destroyed.

R. W. Moreland, et al. (May 25): In examining 1,000 corn plants in bottom-land and upland fields in McLennan County, averages of 3 eggs and 21.2 injured plants were found per 100 plants. Eggs and injury slightly higher in upland fields.

Utah. G. F. Knowlton and D. L. Sargent (April 22): One moth taken in trap light at Cedar City tonight.

EUROPEAN CORN BORER (Pyrausta nubilalis Hbn.)

New York. N. Y. State Coll. Agr. News Letter (May 13): A field of stubble examined in western Suffolk County, on Long Island, on May 10 showed that about 33 percent had pupated. Pupation in Nassau County on May 9 averaged between 2 and 4 percent. On May 10 pupation in Columbia and Rensselaer Counties, in the Hudson Valley, was between 2 and 3 percent. Survey of 35 fields before beginning of plowing revealed a general average of 2,295 borers per acre. Average in sweet corn was 3,656 and in field corn 480 per acre. (May 20): Pupation in Nassau County was between 15 and 20 percent by May 15; and in Columbia County about 12 percent on May 17. (May 27): Pupation is approaching 30 percent in Columbia County and is approximately 50 percent in Nassau County.

New Jersey. C.A. Clark (May 23): Pupation had reached 51 percent in Burlington County on May 23. Moth emergence was found to be 4 percent. Field examinations made in the northwestern part of the county. Spring development considerably behind normal, being a week later than in 1939.

CORN FLEA BEETLE (Chaetocnema pulicaria Melsh.)

Mississippi. C. Lyle (May 25): Reported as attacking corn in Monroe County the last week in April.

SOUTHERN CORN ROOTWORM (Diabrotica duodecimpunctata F.)

Georgia. T. L. Bissell (May 10): Damage to corn beginning to show up at Experiment. The larvae are well grown.

Mississippi. C. Lyle (May 25): Injury to corn reported from Harrison County.

CORN ROOT APHID (Anuraphis maidi-radiciis Forbes)

Iowa. H. E. Jaques (May): Reported from Monona County, western Iowa, and from Wapello and Henry Counties, southeastern Iowa.

SHORT-TAILED CRICKET (Anurogryllus muticus Deg.)

South Carolina. W. C. Nettles (May 27): Severe injury to 3 acres of corn near Chester, in the central part of the State.

ALFALFA

ALFALFA WEEVIL (Hypera postica Gyll.)

Idaho. F. H. Shirck (May 21): Noted at Parma in greater numbers than for several years. Damage moderate.

Utah. G. F. Knowlton and assistants (May): Injury to alfalfa has been occurring in scattering localities all during the month from northern Utah all the way to the south along the central part of the State.

California. A. E. Michelbacher (May 22): The number of larvae collected per 100 sweeps of an insect net in the infested part of the San Joaquin Valley on May 7 ranged from 0 to 167, and the number of adults from 0 to 362. On May 21 the larval count ranged from 0 to nearly 200, and the adult count from 3 to 432. Only in a rather small area south of Tracy is the adult-population density high. In this restricted region the population is the largest encountered since this investigation was started in 1932. Extremely scarce at Pleasanton on May 7 and on May 21 none were collected. In the region adjacent to San Francisco Bay on May 7 the larval count ranged from 8 to 196, and the adult count from 0 to 2. On May 21 the larval count ranged from 5 to 50 and the adult count from 1 to 3. Throughout the entire infested region the amount of parasitization by Bathyplectes curculionis Thoms., based on rearing from last-stage larvae collected in the field on May 7, was slightly in excess of 95 percent.

CLOVER LEAF WEEVIL (Hypera punctata F.)

Utah. G. F. Knowlton and F. C. Harmston (May 1): Eight acres of red clover at Honeyville seriously damaged, and an additional 8 acres damaged seriously in spots, some being completely bare. From 3 to 10 larvae present at the bases of many plants.

Washington. E. J. Newcomer (April 29): Larvae numerous in some alfalfa fields. The mild winter has probably resulted in less mortality than usual.

AN ALFALFA WEEVIL (Hypera brunneipennis Boh.)

General. H. T. Rainwater (May 15): Active scouting extended over suspected areas from early in February to about the first of May. The limits of the infestation, as determined by the 1939 survey, extended about 8 miles south of Yuma, Ariz., to the University of Arizona Experiment Station, extending west about 2 miles at two points, northeast of Yuma, about 1 mile in the vicinity of Winterhaven, in Imperial County, Calif. As a result of the 1940 survey, four new infestations were found—one in the North Gila Valley and one in the South Gila Valley, both in Yuma County, Ariz., and only a few miles from the original Yuma Valley infestation; one about $1\frac{1}{2}$ miles north of Bard, in Imperial County, Calif., approximately 8 miles northeast of Yuma, Ariz.; and one in the University of Arizona Experimental Date Garden at Tempe, Ariz., about 210 miles east of the original infestation in Yuma Valley. (Det. by C.F.W. Muesebeck.)

CLOVER ROOT BORER (Hylastinus obscurus Marsham)

Idaho. J. R. Douglass (May 18): Reported by growers in Twin Falls County that stands of clover are being killed and that stands of first-year clover are being plowed out.

WESTERN SPOTTED CUCUMBER BEETLE (Diabrotica soror Lec.)

California. A. E. Michelbacher (May 22): The population is increasing rapidly. On May 21 a large number that had just recently emerged were collected in the alfalfa fields in the San Joaquin Valley, the Pleasanton area, and the region adjacent to San Francisco Valley.

PEA APHID (Macrosiphum pisi Kltb.)

Kentucky. W. A. Price (May 25): Found on red clover and alfalfa for the first time late in April, but development was delayed by cold weather. No fungus disease found, such as occurred during the last 2 years.

Arizona. H. G. Johnston (May 1): Tremendous injury caused to alfalfa throughout the spring in the Salt River Valley. By early May many fields had been so severely injured that they were pastured rather than cut for hay. Parasitization was slight, and weather conditions favorable for the development of a large population.

Utah. G. F. Knowlton and F. C. Harmston (May): This insect has been very abundant on alfalfa throughout the month in northern and also the southwestern corner of the State.

Nevada. G. G. Schweis (May 20): Much damage to alfalfa in practically all of Western Nevada, being more severe than has been noticed for several years.

Washington. R. D. Eichmann (April 29): Only about 5 percent as many pea aphids as last year on alfalfa in the Gardena and Walla Walla areas. Drought last fall reduced the population materially.

C.F. Webster (May 22): Attack on vetch on May 13 in San Juan County. So heavy that the crop is being plowed under.

Oregon. K. W. Gray (May 20): Rains late in April and early in May materially reduced the population on Austrian winter peas and vetch in the Willamette Valley. They were more abundant than usual but are now down to normal. Rains and humidity favored fungus diseases, which killed the aphids.

PLANT BUGS (Hemiptera)

Utah. G. F. Knowlton (May 10): Nymphs of Lygus elisus Van D. and L. elisus hesperus Knight are appearing in alfalfa.

Arizona. W. A. Stevenson (May 11): The population of Lygus spp. in alfalfa in Pima County continues to be much heavier than in 1939, approximately 10 times as many being caught with the sweep net. During the week ended May 4, 1 alfalfa field showed a fairly heavy population of Adelphocoris superbus Uhl.

T. C. Barber (May 4): Chlorochroa sayi Stal and Euschistus impictiventris Stal are numerous for the season in Maricopa County.

THRIPS (Thysanoptera)

Utah. G. F. Knowlton (May 25): Abundant on alfalfa at New Harmony.

California. L. G. Jones (May 4): Alfalfa in the Antelope Valley severely damaged by Frankliniella occidentalis Perg. and F. moultoni Hood. Climatic conditions early in the spring were favorable for multiplication in grassland throughout the valley, and, as the vegetation dried out, they migrated to alfalfa, starting about March 10. By April 13, 75 percent of the alfalfa leaves were badly deformed and somewhat skeletonized.

VETCH

VETCH BRUCHID (Bruchus brachialis Fahraeus)

Oregon. L. P. Rockwood and M. M. Reeher (May 9): Abundant on April 12 under

and within 100 feet of an oak tree on the edge of a field of hairy vetch near Wilsonville, Clackamas County. Maximum temperature at Forest Grove was 79° F. Large numbers of weevils had been observed in the lichens on this tree in October 1939. Males greatly outnumbered the females on April 12. An abundance was swept within 100 yards of this tree on the few subsequent days when maximum air temperatures were 70° or above. Males continued to predominate in the sweepings, a ratio of 6:4 existing on May 6. There has been a large increase in population over 1939 in this locality, where hairy vetch is known to have been infested for at least 4 years.

GRASS

SOD WEBWORMS (Crambus spp.)

Ohio. T. H. Parks (May 25): Specimens received from Washington County, southern Ohio, on May 23, with the statement that they were damaging young corn.

Texas. R. K. Fletcher (May 17): Considerable damage done in a pasture in Travis County on May 13, our first record of such damage.

SUGARCANE

SUGARCANE BEETLE (Euethola rugiceps Lec.)

Georgia. T. L. Bissell (May 11): Beetles have been numerous in light traps at Experiment since May 7.

Mississippi. C. Lyle and assistants (May 25): Specimens received from Bolivar and Washington Counties on May 17, with the report that they were causing injury to corn. Injury to corn also reported from Harrison County.

Louisiana. J. W. Ingram and W. E. Haley (May 23): Very little fresh beetle injury can be found on sugarcane in southern Louisiana, indicating that injury is practically over for this season. Damage this year has been the lightest on record.

YELLOW SUGARCANE APHID (Sipha flava Forbes)

Louisiana. J. W. Ingram and L. J. Charpentier (May 23): Injury to sugarcane unusually noticeable during the last 30 days.

FRUIT INSECTS

EASTERN TENT CATERPILLAR (Malacosoma americana F.)

General. E. P. Felt (May 23): Becoming somewhat abundant in southwestern New England. Small groups of wild cherry defoliated.

Maine. F. H. Lathrop (May 6): Eggs were observed hatching in Monmouth, Kennebec County, on May 2 on apple and wild cherry. A few clusters in warm, sheltered places had hatched a few days before. At Orono, Penobscot County, hatching was observed today. Apparently more abundant than usual.

Vermont. H. L. Bailey (May 23): Moderately abundant about the State, but generally less plentiful than last year. Hatching later than normal. First tents noticed on May 6 in Washington County, central Vermont.

Massachusetts. A. I. Bourne (May 24): Found hatching approximately on the first few days of May, later than usual.

Rhode Island. A. E. Stone (May 29): Less numerous on the whole than in past years, but abundant in a few places.

New York. R. E. Horsey (May): Present on May 13 on ornamental Japanese quince at Rochester. Fairly numerous on cherry and crab apple in ornamental plantings.

E. P. Felt (May 23): Somewhat abundant in southeastern New York. Small groups of wild cherry have been defoliated.

N. Y. State Coll. Agr. News Letter (May): In eastern New York nests were numerous by May 13 and becoming conspicuous in western Suffolk County. Especially numerous in Rockland County by May 20. In Orange County by May 27 they were about $1\frac{1}{2}$ inches long and more numerous than in 1939; and in Dutchess County they are more conspicuous than in recent years, particularly on hedgerow bushes. In western New York, in Niagara County, nests found up to 2 or 3 inches in diameter. Scarce in Orleans County. Just starting to show up in Monroe County. Hatching started on May 5 in Wayne County; now common in many orchards, the nests on wild cherry being 4 to 5 inches in diameter.

New Jersey. E. Kostal (May 7): Newly hatched larvae noted on apple and wild cherry at Morganville, Monmouth County, on May 1, 3 weeks later than usual. Relatively scarce and damage moderate.

M. D. Leonard (May 29): Many nests observed on hundreds of wild cherry trees in Bergen County. Considerable damage expected.

Pennsylvania. G. B. Slesman (May 24): Heavy infestation found on wild cherry and apple trees throughout eastern Pennsylvania, particularly in the Philadelphia area.

H. E. Hodgkiss (May 25): Normally abundant on apple over Pennsylvania. Eggs hatching and young webs forming in the southern counties on April 22, and elsewhere at the beginning of May.

Delaware. L. A. Stearns (May 6): Just appearing in New Castle County, with nests about 1 inch in size.

Maryland. E. N. Cory (May 6): Attacking trees in Howard, Prince Georges, and Montgomery Counties.

Virginia. C. O. Bare (May 20): Fairly abundant from April 21 to May 12 on wild cherry and plum in Henrico and Chesterfield Counties, as many as two and three nests being found in one tree. Those found on April 21 were nearly $\frac{1}{2}$ inch in length.

Tennessee. G. M. Bentley (May 23): Found on May 1 on wild cherry and apple in eastern Tennessee; 50 percent of leaves eaten at one place.

A TENT CATERPILLAR (Malacosoma sp.)

Washington. F. W. Frasier (May 22): Reported as attacking apples, cherries, and other fruit trees on May 14. Attacks county wide and beginning to be serious.

THRIPS (Thysanoptera)

Arizona. H. G. Johnston (April 3): Apple crop in the Sedona area has been practically destroyed by Frankliniella occidentalis Perg. Many of the small peaches have been completely destroyed and others are being severely scarred. (Det. by F. Andre.)

Washington. L. G. Smith (May 22): Reported on May 15 as injuring young leaves. Poor set of fruit in many orchards due to blossom injury.

SAN JOSE SCALE (Aspidiotus perniciosus Comst.)

Wisconsin. E. L. Chambers (June 1): Little winter mortality on trees and shrubs in the limited infested areas of the State. Not reported in commercial orchard areas.

A LECANIUM SCALE (Lecanium coryli L.)

Washington. E. P. Breakey (May 20): Attacking trees and shrubs, damage being serious and increasing over that of last year. Abundant in prune orchards in Clark County and in sour cherries near Kent, King County.

APPLE

CODLING MOTH (Carpocapsa pomonella L.)

New York. D. W. Hamilton (May 24): Overwintered larvae and pupae more numerous than usual in the Poughkeepsie area. About 40-percent

pupation occurred at Poughkeepsie by May 17, as compared to 20 percent at Germantown, and 13 percent at Kinderhook. No moths observed in emergence cages nor in bait traps. Development is about average.

Delaware. L. A. Stearns (May 23): Pupation amounted to approximately 75 percent on May 17; emergence of spring-brood moths began on May 15 and has continued regularly since that date; eggs now being laid.

Maryland. C. Graham (May 6): First emergence reported at College Park.

Virginia. A. M. Woodside (May 22): First moths found in bait traps on May 15. Emergence of adults from May 18 to 21 very heavy.

Ohio. T. H. Parks (May 25): Regular emergence has been occurring since May 17, when first adults were taken in Lawrence County. First moth at Columbus trapped on May 20, but none caught in the following 5 days. About one-half of the overwintered cocoons contained pupae on May 16.

Indiana. L. F. Steiner (May 9): Emergence began in the insectary in Vincennes on May 7, but no moths have emerged in 4 screen cages located in 2 orchards, in which several thousand larvae were placed in the fall of 1939. Nine moths were taken in 4 different orchards from approximately 300 record traps on May 8. (May 16): Weather conditions since May 14 have permitted very little flight activity, although it is evident that a heavy population is building up. (May 23): Moth catches fell off today from the high of May 22, which was 2,420, owing to low temperatures last night and this morning. Estimated that 72 percent of the surviving larvae in emergence cages had emerged prior to today and that peak of activity is very close or has been reached. No larvae observed in the orchards, but eggs deposited by moths caged over foliage on May 13 hatched on May 21. (May 29): Fumigation of 10 trees on May 28 indicated that a large population is still present, at least three-fourths as large as a week ago. Very unfavorable conditions have prevailed since May 22. Daily rains and generally low temperatures have prevented egg laying. First-brood peak of egg deposition may have occurred last week, provided the weather continues unfavorable, but the present population can produce more eggs than that of a week ago if conditions become favorable in time. First wormy apples observed on May 27, although eggs were hatching early last week.

Kentucky. W. A. Price (May 25): Emergence began at Paducah on May 6, at Princeton on May 7, and at Lexington on May 19. Emergence in western Kentucky unusually heavy during second week in May. Eggs found at Paducah on May 10.

Illinois. W. P. Flint (May 21): Adults emerging throughout the southern two-thirds of the State. Severe damage anticipated, owing to low winter mortality.

Missouri. L. Haseman (May 21): Emergence in southern Missouri experimental stations began on May 6-8, and a week later in the northern part of the State. Some rather heavy catches were being made throughout the State prior to May 20. Oviposition not heavy, owing to general rains and a tendency toward cool weather.

Missouri and Kansas. H. Baker (May 21): Development is backward and proceeding slowly in northeastern Kansas and northwestern Missouri. Orchard examinations showed 8-percent pupation on April 19, 23 percent on April 29, 55 percent on May 9, and 81 percent on May 20. First moths caught in bait traps on May 13 but few since. No eggs found in an examination on May 20.

Washington. L. G. Smith and assistants (April 29): First pupae found about March 12 in the Yakima district, the season being a few days earlier than normal. First moths observed in orchards on April 17 and first taken in baits on April 19. (May 8): Adult emergence reported on May 3, starting early, two and four moths being caught in bait pots on April 22 and 23, respectively, in the Wenatchee district. No oviposition evident. Pupae observed beneath bark on some apple trees in Spokane County on May 4.

Oregon. B. G. Thompson (May 20): No eggs laid in the Willamette Valley up to May 18.

California. H. J. Ryan (May 21): Control measures carried on in Antelope Valley on apples and pears, the first work starting on April 11. Infestations in Persian walnuts showed a peak emergence about May 10. Sizes of young walnuts very uneven and many orchards have light crops. Eggs easily found, and a few larvae found entering nuts by May 18.

FRUIT TREE LEAF ROLLER (Cacoecia argyrospila Walk.)

New York. N. Y. State Coll. Agr. News Letter (May 27): In Orange County several heavy infestations were observed and throughout the lower Hudson Valley this pest is more widely distributed than in recent years. In western New York, in Niagara County, leaf rollers are developing up to $\frac{1}{4}$ inch in length. In Monroe County they are fairly abundant in some orchards, and in Wayne County many larvae are in the second instar.

Indiana. L. F. Steiner (May 16): Light infestations observed in the Vincennes area in three treated and two untreated apple orchards, many of the larvae now being from 12 to 15 mm. in length. (May 29): More than normal amount of leaf rolling and feeding on fruit in local orchards this year. Larvae are nearly mature.

Illinois. W. P. Flint (May 21): Larvae now nearly full grown in southern Illinois and damaging raspberries and some flowering plants, particularly peonies, as well as orchards. In central Illinois the larvae will feed for at least another 3 weeks or more. Abundant on woodland trees and in all apple orchards. Heavy damage expected.

Michigan. R. Hutson (May 21): Hatched at South Haven on May 10.

Missouri. L. Haseman (May 21): Heaviest infestation since the turn of the century, being prevalent throughout practically all of the eastern half of the State. Injury is not restricted to fruit, forest, and shade trees, but roses, shrubs, peonies, garden vegetables, and other herbaceous plants are being attacked. Older larvae just about half grown, a large amount of young fruit being injured.

Utah. G. F. Knowlton (May 21): Seriously damaging apple foliage in an orchard at Cove on May 18.

PISTOL CASEBEARER (Colcophora malivorella Riley)

Pennsylvania. H. E. Hodgkiss (May 25): Feeding in apple buds on April 30. Some had started enlarging their cases.

Delaware. L. A. Stearns (May 21): Moderate infestation on apple in the vicinity of Camden and Wyoming.

Illinois. W. P. Flint (May 21): Covering a wider range than in 1939.

EYE-SPOTTED BUDMOTH (Spilonota ocellana D. & S.)

New York. N. Y. State Coll. Agr. News Letter (May 27): Unusually abundant in some eastern New York orchards. First noted entering buds in western New York, where they are numerous, on May 3 and 4.

Pennsylvania. H. E. Hodgkiss (May 25): Rather numerous in apple orchards on May 17 in Monroe County. Larvae were mature on May 22 in the southeastern counties.

GREEN FRUITWORM (Graptolitha antennata Walk.)

New York. N. Y. State Coll. Agr. News Letter (May 27): More abundant in apple orchards than last year in Rockland and Dutchess Counties. Active in Orange County but not abundant.

Pennsylvania. H. E. Hodgkiss (May 25): Larvae were taken on terminals of apple in Carbon County on May 16.

APHIDS (Aphididae)

Massachusetts. A. I. Bourne (May 24): Various species of apple aphids were hatching about April 23 to 25, which is considerably later than normal. Almost impossible to find any aphids in many orchards, and in no case was the infestation heavy.

New York. N. Y. State Coll. Agr. News Letter (May): Present in light to moderate numbers in the lower Hudson Valley, and considerably less

than last year. By the end of the month the rosy aphid (Anuraphis roseus Baker) seemed to be increasing in abundance in the Hudson Valley and also in western New York.

Pennsylvania. H. E. Hodgkiss (May 25): Apple aphids relatively scarce. Rosy aphid eggs began hatching on April 11 in Delaware County, south-eastern Pennsylvania, whereas eggs of the green apple aphid (Aphis pomi Deg.) and grain aphid (Rhopalosiphum prunifoliae Fitch) hatched on April 3. A count of nymphs on April 11 indicated that the rosy aphids comprised 8 percent of the infestation.

Delaware. L. A. Stearns (May 21): Rosy aphid infestation generally light throughout the State, except in apple orchards where complete control measures had been omitted.

Indiana. L. F. Steiner (May 9): Apple grain aphid is the only species noted on apple in southwestern Indiana and it is unusually scarce. (May 16): First colonies of rosy aphid seen on May 10 in the Vincennes area. (May 29): Rosy aphids are increasing rapidly and causing some stunting of fruit.

Kentucky. W. A. Price (May 28): Rosy aphid is becoming rather abundant in orchards at Lexington and Henderson.

L. F. Steiner (May 9): R. prunifoliae is unusually scarce on apple in northern Kentucky.

Wisconsin. C. L. Fluke (May 20): Apple grain aphid present in reduced numbers this spring, being less numerous than for several years.

Missouri. L. Haseman (May 21): Few signs of trouble on fruit trees.

Washington. L. G. Smith (May 22): Light infestation of rosy aphids in the Skagit Valley on May 10. Ashy-gray ladybeetle (Psyllobora taedata Lec.) present.

APPLE REDEBUG (Lygidea mondax Reut.)

New York. N. Y. State Coll. Agr. News Letter (May 27): First nymphs observed in Wayne County, western New York, on May 19. Some nymphs in second instar, and typical injury apparent on young foliage.

Pennsylvania. H. E. Hodgkiss (May 25): First instar observed on apple in northeastern counties on May 15 and 16.

EUROPEAN RED MITE (Paratetranychus pilosus C. & F.)

Massachusetts. A. I. Bourne (May 24): Found hatching about May 10. Infestation light, as compared with normal years. Quite heavy

infestation in some blocks or in isolated orchards.

New York. N. Y. State Coll. Agr. News Letter (May 20): Hatched on May 13 in Dutchess County. (May 27): Newly hatched mites scarce in two orchards that contained heavy egg infestations. Nymphs plentiful in several orchards in Rockland County. Observed hatching in Monroe, Wayne, and Niagara Counties from May 16 to 18.

Pennsylvania. H. E. Hodgkiss (May 25): Eggs very abundant on apple in central and southeastern counties, and in Erie County.

Michigan. R. Hutson (May 21): Infestations very spotty but sometimes severe in several localities.

Washington. Ortho News (April 29): Eggs found on apple leaves at Wapato on April 20. (May 8): Eggs found on Orcas Island on March 21.

PEACH

ORIENTAL FRUIT MOTH (Grapholitha molesta Busck)

New York. D. W. Hamilton (May 24): Adults found daily at Poughkeepsie in bait traps in apple orchards at least 1 mile distant from peach trees

Indiana. L. F. Steiner (May 2): No emergence observed in the Vincennes area.

Delaware. L. A. Stearns (May 23): Pupation approximately complete on May 17; emergence of spring-brood moths began on May 3 and was very heavy from May 7 to 14.

Maryland. C. Graham (May 6): First emergence at College Park occurred today

Virginia. A. M. Woodside (May 22): Few twigs infested in Rockingham County.

Georgia. O. I. Snapp (May 14): Full-grown larvae of the first generation found in green peaches at Fort Valley, central Georgia, today.

T. L. Bissell (May 10): Numerous young peach tree shoots damaged at Griffin.

Mississippi. C. Lyle (May 25): Injury to peach twigs reported from the northeastern part of the State, and from Forrest, Leflore, and Holmes Counties.

Louisiana. C. O. Eddy (May 22): Second generation appearing in considerable numbers in central Louisiana.

Missouri. L. Haseman (May 21): Not abundant in east-central and southeastern Missouri.

Texas. R. K. Fletcher (May 17): Found on wild plum on May 8 in Nacogdoches County, (Det. by O. I. Snapp.)

PEACH TWIG BORER (Anarsia lineatella Zell.)

Missouri. L. Haseman (May 21): Reported as occurring in various parts of the State, with considerable injury in central Missouri.

Utah. G. F. Knowlton (May 7): Serious damage caused in several young peach orchards examined at Providence.

Washington. L. B. Wooten (May 8): First attack noted on May 3 on young peach trees in the Omak and Okanogan communities.

PEACH BORER (Conopia exitiosa Say)

Georgia. O. I. Snapp (May 16): Heavy infestation observed today in a peach orchard at Woodland, Talbot County, in central Georgia.

PLUM CURCULIO (Conotrachelus nenuphar Hbst.)

Maine. F. H. Lathrop (April 24): First emergence from experimental hibernation cages today at Monmouth, Kennebec County.

New York. N. Y. State Coll. Agr. News Letter (May 27): Apple and sweet cherry injured late in May in the lower Hudson Valley.

Pennsylvania. H. E. Hodgkiss (May 25): Emerging from hibernation in Adams County on May 5. Adults were abundant in peach orchards during the week of May 20 and were cutting newly formed apples.

Delaware. L. A. Stearns (May): Maximum activity of overwintered adults at Bridgeville on May 6.

Maryland. C. Graham (May 14): Emergence covered a long period at Salisbury, owing to inclement weather.

Virginia. A. M. Woodside (May 22): First adults captured in Crozet section on April 18. Infestation there is heavy, but it is light in Augusta and Rockingham Counties.

Georgia. T. L. Bissell (May 15): A grower jarred 150 curculios from 1,000 trees at Williamson, Pike County, on May 9. This is a low infestation.

O. I. Snapp (May 20): First full-grown larvae of the season emerged from peach drops at Fort Valley on May 10, 3 weeks later than last year. Infestation of peach drops lighter than usual, owing to cooler weather in April. Light second generation anticipated.

Correction.--On page 91 of the Insect Pest Survey Bulletin dated May 1, 1940, "First pairing of the season observed amongst 8 plum curculios from 14 trees" should read "First jarring (or bumping) yielded 8 curculios from 14 trees."

Mississippi. C. Lyle (May 25): Damage reported in the Meridian area. Wild plums heavily infested in Choctaw, Oktibbeha, and Webster Counties.

Louisiana. C. O. Eddy (May 22): Unusually severe in northern and central Louisiana.

Indiana. L. F. Steiner (May 16): Recovered in treated apple trees on May 16 in the Vincennes area.

Kentucky. W. A. Price (May 25): Egg laying began at Lexington on plums about May 18.

Missouri. L. Haseman (May 21): Since May 1 a great deal of damage has been done in central Missouri, especially in plums.

Nebraska. M. H. Swenk (May 17): Request for control measures on plum trees received from Richardson County on May 13.

RED-LEGGED FLEA BEETLE (Derocrepis erythropus Melsh.)

Maryland. C. Graham (May 9): Feeding on foliage and buds of 1- and 2-year-old peach trees at Smithsburg. Very destructive.

SHOT-HOLE BORER (Scolytus rugulosus Ratz.)

New York. N. Y. State Coll. Agr. News Letter (May 20): Several beetles observed feeding on foliage in a block of young apple trees at Suffern, Rockland County.

Ohio. T. H. Parks (May 25): Several requests for control measures received from peach growers in northern counties. (Det. by J. N. Knull.)

Oklahoma. C. F. Stiles (May 22): Seriously injuring peach trees in the vicinity of Guthrie.

CHERRY SCALE (Aspidiotus forbesi Johns.)

West Virginia. G. H. Geissler (April 27): Specimens collected on April 24 at Levels from peach. (Det. by H. Morrison.)

PEAR

PEAR PSYLLA (Psylla pyricola Foerst.)

New York. N. Y. State Coll. Agr. News Letter (May 13): First observed on May 8 in Ulster County, and very scarce in both Ulster and

Columbia Counties. In Orange County, nymphs are mostly in the first three instars, and quite a few newly laid eggs are being found. In western New York eggs are numerous in pear orchards in Erie, Orleans, and Wayne Counties.

Washington and Idaho. L. G. Smith (April 29): Located as far west as Davenport, Lincoln County, Wash., as far south as Thornton, Whitman County, Wash., and as far north as Sandpoint, Idaho, and Deer Park, Spokane County, Wash. Reported as active during the week of March 18, and as depositing eggs in the Spokane district of Washington.

PEAR MIDGE (Contarinia pyrivora Riley)

New York. N. Y. State Coll. Agr. News Letter (May 27): Out in large numbers in Ulster County on May 3, and working in the blossom buds on May 8. Observed ovipositing in western Suffolk County on May 6, and injury was apparent on young pears on May 27. Observed in numbers for the first time in Orleans County on May 9.

PEAR THRIPS (Taeniothrips inconsequens Uzel)

New York. N. Y. State Coll. Agr. News Letter (May 6): Severely damaged a crop of pears in an orchard in Ulster County, probably ruining 85 percent of the opening buds.

Oregon. S. C. Jones (May 20): Larvae still present on prune and cherry foliage in the Umpqua Valley. Considerable damage has been done to foliage of prunes in Douglas County, the worst infestation since 1937.

CHERRY

CHERRY LEAF MINER (Profenusa canadensis Marlatt)

New York. D. W. Hamilton (May 24): Adults active on cherry trees on May 13 at Hudson, eastern New York. Emergence ceased on May 14.

PLUM

APHIDS (Aphidae)

Georgia. O. I. Snapp (April 29): Rusty plum aphid (Hysteroncaura setariae Thos.) very abundant at Fort Valley. Considerable damage to plum crop where control measures were not used.

Mississippi. C. Lyle (May 25): Reports of injury to plum received from various parts of the State.

Texas. R. K. Fletcher (May 17): Attacking plum in Kimble County on May 11.

Utah. G. F. Knowlton and F. C. Harnston (May 11): Mealy plum aphid (Hyalopterus arundinis F.) was severely attacking a young prune orchard at Hanksville. Curling of plum leaves was noticed in an orchard at Centerville on May 17.

BRAMBLES

RASPBERRY FRUITWORM (*Byturus unicolor* Say)

New York. N. Y. State Coll. Agr. News Letter (May): Reported as appearing for first time on May 9 in Columbia County, on May 15 in Ulster County, and on May 22 at Geneva. Reported as causing less trouble in Orange County this year than last, and as being unusually numerous in Ulster County. On May 22 in Geneva they were beginning to injure the tender foliage and new blossom buds of raspberry. In western New York, in Ontario County, beetles appeared on May 23 and were damaging new buds of raspberry. First seen mating on May 24 in Wayne County.

Washington. L. G. Smith (May 15): Eggs first found on thimbleberry on May 9. Larvae reported as attacking all raspberry- and loganberry-type berries. Reported as being very plentiful and attacking loganberry plants in the Puyallup Valley on May 10.

B. J. Landis (May 21): The known distribution was extended in northwesterly and southeasterly directions, following a survey on wild thimbleberry. Adults found at Packwood, eastern Lewis County, on May 12, and eggs and adults found in Clallam and Grays Harbor Counties on May 18 and 19.

IMPORTED CURRANT WORM (*Pteronidea ribesii* Scop.)

Washington. L. G. Smith (April 29): Specimens received on March 20 from Vashon Island, where they were attacking currants.

CURRANT APHID (*Capitophorus ribis* L.)

New York. N. Y. State Coll. Agr. News Letter (May): Observed in small numbers on April 30 in Orange County, and on May 27 in Ulster County.

Utah. G. F. Knowlton and F. C. Harnston (May 6): Seriously damaging red currants at Logan.

FOUR-LINED PLANT BUG (*Poecilocapsus lineatus* F.)

New York. N. Y. State Coll. Agr. News Letter (May 27): Nymphs reported as damaging currants in Orange and Ulster Counties.

ROSE SCALE (*Aulacaspis rosae* Bouche)

Maryland. E. N. Cory (April 24): Found on raspberries at Smithsburg

Mississippi. M. L. Grimes (May 25): Light infestation on rose and young-berry reported in the Meridian area.

GRAPE

GRAPE LEAFHOPPERS (Erythroneura spp.)

Michigan. R. Hutson (May 21): Very numerous on May 8 on the borders of vineyards around Lawton.

Washington. L. G. Smith (April 29): Active in the Grandview-Granger district on February 23. Small number found on February 26 in leaves and debris of a vineyard 5 miles west of Wapato. Considerable damage reported by growers. (May 8): Reported as attacking grapes at Riverview near Pasco on May 6.

GRAPE SCALE (Aspidiotus uvae Comst.)

North Carolina. J. O. Rowell (April 18): Specimen of grape cane infested with scale received from Marion. (Det. by H. Morrison.)

PECAN

PECAN NUT CASEBEARER (Acrobasis caryae Grote)

Florida. S. O. Hill (May 16): First pupa of overwintered generation found in the field on April 19 in Jefferson County, northern Florida, and first empty pupal case found in the field on May 4. Peak of adult emergence from caged material in the insectary occurred on May 13.

FALL WEBWORM (Hyphantria cunea Drury)

Florida. S. O. Hill (May 16): Eggs present on pecan foliage in Jefferson County on April 15. First-generation larvae present on pecan foliage on April 30.

PHYLLOXERA (Phylloxera spp.)

Virginia. M. I. Fenwick (May 21): Specimens of pecan leaves containing galls formed by P. conica Shim. were submitted from Bowers Hill on May 21. (Det. by P. W. Mason.)

Mississippi. C. Lyle (May 25): Reports of serious injury to pecan trees by the pecan phylloxera (P. devastatrix Perg.) received from Holmes, Warren, and Yazoo Counties.

Texas. R. K. Fletcher (May 17): Serious damage reported in Collin County on May 11. Requests for control received from Brazoria County on May 10.

BLACK PECAN APHID (Melanocallis caryaefoliae Davis)

Georgia. T. L. Bissell (May 23): Abundant on pecan at Experiment, causing noticeable spotting of leaves.

CITRUS

CLOUDY-WINGED WHITEFLY (Dialeurodes citrifolii Morg.)

Florida. H. Spencer (April 29): Peak of egg laying of the first brood almost over on the east coast. Many larvae have settled on new growth of citrus.

CITRUS WHITEFLY (Dialeurodes citri Ashm.)

Mississippi. C. Lyle and assistants (May 25): Numerous during the last 2 weeks in the southeastern part of the State. Heavy infestation observed early in May on Cape-jasmine.

Texas. Mrs. M. Wilkenfeld (February 28): Orange leaves from Goose Creek infested. (Det. by Louise M. Russell.)

GREEN CITRUS APHID (Aphis spiraeicola Patch)

Florida. H. T. Fernald (May 20): Abundant on new growth of citrus and other plants at Winter Park.

J. R. Watson (May 22): Some complaints received from the east coast, but unusually scarce this year in the Citrus Belt as a whole.

MELON APHID (Aphis gossypii Glov.)

California. H. J. Ryan (May 21): Very little control necessary on citrus in Los Angeles County. Large numbers of predators and parasites were in evidence.

BLACK CITRUS APHID (Toxoptera aurantiae Fonsc.)

California. H. J. Ryan (May 21): Control measures in Los Angeles County not required to a great extent. Many predators and parasites are present.

CALIFORNIA RED SCALE (Aonidiella aurantii Mask.)

California. H. J. Ryan (May 21): Continued to emerge throughout April in Los Angeles County. Some control measures used on lemons.

COTTONY-CUSHION SCALE (Icerya purchasi Mask.)

Florida. H. T. Fernald (May 15): Abundant on citrus in a number of places in Winter Park. Control measures successful.

Arizona. C. D. Lebert (May 21): Numerous infestations observed on both ornamentals and citrus. Rodolia cardinalis Muls. is well established on several of the heavier infestations.

FLORIDA RED SCALE (Chrysomphalus aonidum L.)

Florida. W. Mathis (May 22): Strong winds on the east coast during latter half of April swept away one-third of the larvae which had just settled on orange and grapefruit leaves in an experimental plot.

ORANGE TORTRIX (Argyrotaenia citrana Fern.)

Florida. J. R. Watson (May 22): Sent in from St. Lucie County where the usual damage to young oranges was occurring.

A STAPHYLINID (Trigonopeltastes delta Forst.)

Florida. J. R. Watson (May 22): Common in various flowers and reported as doing serious damage to a few Persian limes near Homestead.

CITRUS THRIPS (Scirtothrips citri Moul.)

California. H. J. Ryan (May 21): Control treatments being applied in all parts of Los Angeles County by the middle of May.

CITRUS RUST MITE (Phyllocoptes oleivorus Ashm.)

Florida. H. Spencer (April 23): Unpicked citrus fruit on the east coast is russeting severely from attacks.

M. R. Osburn (May 22): Increasing in the vicinity of Fort Pierce, on the east coast.

SIX-SPOTTED MITE (Tetranychus sexmaculatus Riley)

Florida. J. R. Watson (May 22): Prevalent in Florida, especially on grapefruit, doubtless owing to unusually dry weather. Heavy dropping of foliage in some sections.

H. Spencer (May 20): Infestations have increased on the east coast since the last week of April, especially in grapefruit plantings. Control measures successful.

CITRUS RED MITE (Paratetranychus citri McG.)

California. H. J. Ryan (May 21): Infestations built up during April in Los Angeles County.

TRUCK - CROP INSECTS

VEGETABLE WEEVIL (Listroderes obliquus Klug)

Mississippi. D. W. Grimes (May 25): Severe damage done to turnips in Holmes County.

Louisiana. C. O. Eddy (May 22): Adults have been appearing during the last month.

STRIPED CUCUMBER BEETLE (Diabrotica vittata F.)

New York. N. Y. State Coll. Agr. News Letter (May 20): Caught on May 17 in orchard on Long Island.

Delaware. L. A. Stearns (May 17): Rather abundant on young cucumber and squash plants in Sussex County.

Virginia. A. M. Woodside (May 22): Very common near Timberville, in Rockingham County.

South Carolina. J. G. Watts (May): Relatively scarce at Blackville.

Mississippi. C. Lyle and assistants (May 25): Injury reported from the Meridian area, from Pearl River and Tate Counties, and from the southeastern part of the State.

Louisiana. L. D. Newsom (May 22): Found on volunteer squash.

Ohio. N. F. Howard (May 22): Very abundant on volunteer squash at Columbus and South Point. Apparently a severe winter has not reduced the numbers.

Missouri. L. Haseman (May 21): Few complaints received, but early cucurbits in central Missouri have already shown injury. Beetles not particularly abundant on fruit blossoms.

Texas. R. K. Fletcher (May 17): Found on watermelon on May 7 in Harris County.

SPOTTED CUCUMBER BEETLE (Diabrotica duodecimpunctata F.)

South Carolina. J. G. Watts (May): Damage at Blackville not extensive.

Mississippi. C. Lyle (May 25): Adults reported as feeding on cucumbers and cantaloups in the Meridian area.

Louisiana. L. L. Neveu (May 22): Adults abundant on flax.

Iowa. H. E. Jaques (May): Found in scattered localities in the southern half of the State.

FLEA BEETLES (*Halticinae*)

Connecticut. A. W. Morrill, Jr. (May 21): Preliminary examinations of woods debris have indicated that the potato flea beetle (*Epitrix cucumeris* Harr.) has been able to survive the cold winter in moderately large numbers and that emergence will be normal.

New York. N. Y. State Coll. Agr. News Letter (May 20): In western New York active on young cabbage plants in the field in Tompkins, Wayne, Niagara, and Erie Counties. (May 27): Damage to potatoes, beans, and early set tomatoes in western Suffolk, Columbia, and Nassau Counties, eastern New York.

Mississippi. C. Lyle and assistants (May 25): Reported as attacking eggplant and tomatoes in the Meridian area, and in Carroll, Grenada, and Yalobusha Counties.

North Dakota. J. A. Munro (May 23): Injury reported in the vicinity of Fargo. Very abundant last year, many plantings being ruined.

Utah. G. F. Knowlton and F. C. Harmston (April 27): Flea beetles are severely damaging tomatoes, cabbage, and sweet corn in the southwestern corner of the State. Some small fields of sweet corn reported as having been entirely destroyed.

Washington. L. G. Smith (April 29): Adult cabbage flea beetles were observed feeding on dock on March 19 in the Brady district of Grays Harbor County. (May 15): Found attacking potato plants on May 11 in the Puyallup Valley, and observed on volunteer plants on the same date in the vicinity of Snohomish. Beetles observed on May 8, attacking radish and related plants for the first time this year. (May 22): Reported as attacking tomato plants on May 16 around Shelton, in Mason County. First infestation observed this season. Truck crops reported as being attacked in the vicinity of Friday Harbor, in San Juan County, on May 13.

SEED-CORN MAGGOT (*Hylemya cilicrura* Rond.)

Mississippi. C. Lyle (May 25): Specimens received from Attala County the last week in April, with information that they were injuring sprouting beans.

Utah. G. F. Knowlton (May 8): Canning peas at Murray and Tremonton have been damaged.

SOUTHERN MOLE CRICKET (*Scapteriscus acletus* R. & H.)

Florida. H. T. Fernald (April 24): Extremely abundant tonight at a light in Winter Park. (Det. by A. B. Gurney.)

GARDEN CENTIPEDE (*Scutigera immaculata* Newp.)

Utah. G. F. Knowlton (May 13): Wheat prevented from growing on part of a farm at Farr West, Weber County. Damage observed in a home garden at Logan.

Oregon. H. E. Morrison (May 4): About 1/4 acre of spinach destroyed at Eugene.

POTATO AND TOMATO

COLORADO POTATO BEETLE (*Leptinotarsa decemlineata* Say)

New York. M. D. Leonard (May 15): Overwintered adults reported as present for the first time in fair numbers in a field of newly sprouting potatoes at Roslyn, Long Island.

New York. N. Y. State Coll. Agr. News Letter (May 20): Beetles are making their appearance in Nassau County but are not laying eggs.

Delaware. L. A. Stearns (May): Present on young tomato plants on May 17; first eggs observed in Kent County on May 22.

Virginia. A. M. Woodside (May 22): Beetles are entering plantings, and a few eggs have been observed.

L. A. Hotrick (May 25): Many eggs on foliage of potato plants on May 2 in Mathews County. Only a few eggs had hatched.

South Carolina. F. Sherman et al (May 27): Scarcer than usual at Clemson. Very abundant and destructive on tomato plants at Bonnetttsville.

Mississippi. C. Lyle (May 25): Reports of serious injury to untreated potato and tomato plants received from localities scattered throughout the State.

Tennessee. G. M. Bentley (May 23): Noticed on May 4 in a garden near Nashville, Davidson County, but no damage done. Reported as attacking potatoes, tomatoes, and eggplant in counties in western Tennessee on May 14, damage being general and severe. On May 15 a few adults were noticed on potatoes in Humphreys County, but no damage was done.

Ohio. R. H. Nelson (May 23): Very abundant at South Point for the last 2 weeks or more.

Iowa. H. E. Jaques (May): Widely scattered throughout the southern half of the State.

Missouri. L. Haseman (May 21): Very heavy infestation appeared on early potatoes early in May throughout central Missouri. Oviposition heavy since the middle of the month, and some of the eggs are just beginning to hatch.

Utah. G. F. Knowlton and R. Whiting (May 10): Adults appeared earlier at Roy in northern Utah than during the previous season.

Washington. M. C. Lane (May 17): Adults have been laying eggs in great numbers on early potatoes in the Kittitas, Yakima, and Walla Walla Valleys.

A WEEVIL (Compsus auricophalus Say)

Mississippi. C. Lyle (May 25): Specimens received from Yazoo County early in May, with the information that they were found on potato.

CORN EAR WORM (Heliothis armigera Hbn.)

South Carolina. J. G. Watts (May): One first-instar larva and one egg found on tomatoes at Blackville in about three-fourth hour's search on May 16. Several moths seen flying in a field on May 20.

Georgia. T. L. Bissell (May 23): Larvae reported from Clarkston, DeKalb County, as starting to infest tomatoes from 1 to $1\frac{1}{2}$ inches in diameter.

California. J. Wilcox (May 20): Nearly 100 percent of the tassels in a 20-acre field of sweet corn at Olive, Orange County, infested on May 6 with one or more larvae. On May 17 at El Toro, Orange County, the large larvae were migrating from the tassels in a 40-acre field of sweet corn and were damaging the young ears. A few tomatoes have been found infested.

TOMATO PINWORM (Keiferia lycopersicella Busck)

California. J. C. Elmore (May 20): Common on early tomatoes in eastern Orange County. Less common than usual in the San Pedro hills and more numerous than usual in the San Fernando area, both in Los Angeles County.

THRIPS (Thysanoptera)

North Dakota. J. A. Munro (May 23): Injury severe on foliage of potato plants growing in a greenhouse at Fargo. All plants injured.

ROOT GNATS (Sciaridae)

North Dakota. J. A. Munro (May 23): Larvae were present on practically all potato seed pieces examined in a field of potatoes and appeared to be causing injury.

A MEALYBUG (Pseudococcus sp.)

New York. R. W. Leiby (May 2): Reported as severely stunting tomatoes in several greenhouses at Rochester. (Det. by H. Morrison.)

TOMATO PSYLLID (Paratrioza cockerelli Sulc.)

Arizona. V. E. Romney (May 21): Numbers produced this season on Lycium andersonii in Arizona desert breeding areas are very low. Infestations in new territory owing to migrations from this source should be correspondingly low.

BEANS

MEXICAN BEAN BEETLE (Epilachna varivestis Muls.)

- New York. N. Y. State Coll. Agr. News Letter (May 27): Not very numerous in western Suffolk County.
- Virginia. A. M. Woodside (May 22): First beetle observed on May 17 at Staunton.
- Georgia. T. L. Bissell (May 20): Numerous on beans, and eggs were found today at Experiment, central Georgia.
- Mississippi. W. B. Hollingsworth (May 1): Earlier and more abundant at Hattiesburg than last year. Considerable damage noted today, almost a month earlier than any damage was noticed last year.
- C. Lyle and assistants (May 25): Light infestations reported from the Meridian area and from Yalobusha County.
- Louisiana. C. O. Eddy (May 22): A very strong first generation is developing in Bogalusa, Washington Parish.
- Tennessee. G. M. Bentley (May 23): Reported as damaging beans in Chester County, western Tennessee, on May 14.
- Ohio. R. H. Nelson (May 23): First beetle observed in a field at South Point on May 23. One egg mass present, indicating that emergence will probably be 10 days earlier than last year. Still relatively scarce, owing to cool weather.

BEAN LEAF BEETLE (Cerotoma trifurcata Forst.)

- Virginia. A. M. Woodside (May 22): Fairly common in and around Staunton. Some damage has occurred.
- South Carolina. F. Sherman et al. (May 27): Appears to be more numerous than usual at Clemson.
- Georgia. T. L. Bissell (May 10): Bean leaf beetle is peppering small bean plants severely at Experiment. (May 20): More abundant and injurious this year than usual on beans and on cowpeas at Experiment. Beans are beginning to blossom but are held back by dry weather and are not outgrowing the beetle feeding.
- H. O. Lund (May 25): Two acres of young bean plants severely injured at Winder. Severe damage to leaves has occurred, leaving only midribs remaining on most plants.
- Mississippi. C. Lyle and assistants. (May 25): Reported as numerous on bean and as causing injury in many localities throughout the State.
- Louisiana. C. O. Eddy (May 22): Abundant on beans and soybeans.

Tennessee. G. M. Bentley (May 23): Found on May 15 damaging bunch beans in a home garden at McEwen, Humphreys County; also causing injury in the Knoxville section.

Kentucky. W. A. Price (May 25): Bean injury was common the latter part of May.

Illinois. A. F. Satterthwait (May): An adult appeared in a Japanese beetle trap at Urbana-Champaign on May 13.

PEAS

PEA WEEVIL (Bruchus pisorum L.)

Georgia. T. L. Bissell (May 22): Weevils are ovipositing freely on pods of Austrian peas at Experiment.

Michigan. R. Hutson (May 21): Reported in garden peas at Mulliken, Roscobush, Lansing, and Owosso.

Idaho. T. J. Brindley (April 29): Few adults collected near Moscow on April 25.

Washington. W. Shaw (April 29): Located on a farm in the Agnew district of Clallam County on December 11, 1939. Believed to be the first record in the county.

PEA APHID (Macrosiphum pisi Kltb.)

New York. N. Y. State Coll. Agr. News Letter (May 20): Scarce in Nassau County.

Maryland. L. F. Ditman (May 25): Gradual increase at Ridgely since the second week in May, occurring in such numbers that control measures were necessary on late peas.

Mississippi. C. Lyle (May 25): Reported as causing injury to English peas in various parts of the State.

Louisiana. C. O. Eddy (May 22): Very rare this spring.

CABBAGE

IMPORTED CABBAGE WORM (Pieris rapae L.)

Connecticut. N. Turner (May 23): Adults flying in small numbers for the last 10 days. No larvae seen up to the present.

New York. N. Y. State Coll. Agr. News Letter (May 27): In eastern New York, in Columbia County, a scattering of eggs is evident. In Richmond and Rockland Counties adults observed in small numbers.

South Carolina. W. J. Reid, Jr. (May 23): Owing to unusually low temperature of the last winter and continued cool weather, that prevailed until well into May, populations of the cabbage looper (Autographa brassicae Riley), the diamond-back moth (Plutella maculipennis Curt.), and the imported cabbage worm were greatly below those of the average season on the commercial spring cabbage crop in the vicinity of Charleston. Appearance of each of the three species in appreciable numbers on the spring crop was from 2 to 3 weeks later than the average of the preceding 4 years.

F. Sherman (May 27): Adults seem fewer than usual this spring at Clemson.

Mississippi. L. J. Goodgame (May 25): Damage quite noticeable in the north-eastern section of the State.

Missouri. L. Haseman (May 21): Adults not nearly so abundant as usual.

North Dakota. J. A. Munro (May 23): Adults moderately abundant at Fargo.

Washington. L. G. Smith (April 29): First adults of the season seen flying on April 20 in Pullman.

APHIDS (Aphididae)

South Carolina. J. G. Watts (May): Very abundant at Blackville on cabbage, collards, and turnips, despite extensive activity by parasites and predators.

W. J. Reid (May 23): Cabbage aphid (Brevicoryne brassicae L.) observed to be more abundant on spring cabbage than at any time during the last 12 years at Charleston. Observations made at harvest in a 2-acre planting reveal that plants having moderate and heavy infestations showed noticeable injury.

Mississippi. C. Lyle (May 25): Thirty percent of the cabbage in the northeastern part of the State reported as rendered unfit for market. Severe damage to turnips also reported from northern Mississippi.

Tennessee. L. B. Scott (May 23): Very abundant on cabbage in north-central Tennessee, and damage reported as serious in many instances.

Ohio. R. H. Nelson and N. F. Howard (May 25): B. brassicae extremely abundant on April 26 on young cabbage plants in the field at South Point. No infestations noted on some plants. Increase in numbers made control measures necessary.

Washington. L. G. Smith (May 15): Severe infestation found on leaves, stalks and tips of seed cabbage just west of Mount Vernon, in Skagit County, on May 10.

CABBAGE SHOOT WEEVIL (Ceutorhynchus assimilis Payk.)

Washington. L. G. Smith (April 29): Observed on wild mustard in bloom in the Brady district of Grays Harbor County on March 19. However, no weevils were found on a field of mustard in bloom on Orcas Island which was examined on March 21.

CABBAGE CURCULIO (Ceutorhynchus rapae Gyll.)

Ohio. T. H. Parks (May 31): Cabbage plants reported as attacked in hotbeds in Morgan County. Both larvae and eggs present in stems of plants.

Missouri. J. A. Denning (April 29): Specimen which was collected on a species of Cheiranthum on April 26 received from Glendale. Reported as being very troublesome in a perennial garden. (Det. by L. L. Buchanan.)

Wisconsin. C. L. Fluke (May 20): Very numerous in Dane County in vicinities where it was destructive last year to early cabbage seedbeds. Considerable damage by feeding of adults but no eggs found. Seedbeds found by adults as soon as the plants emerged above ground. First adults noticed on May 8.

Oregon. J. R. Parker (May): Eggs present on and small larvae found attacking the young transplanted cabbage in Douglas County. The larvae were doing considerable damage.

CABBAGE MAGGOT (Hylemya brassicae Bouche)

Connecticut. N. Turner (May 23): Eggs first observed on cabbage on May 13, about 10 days later than usual. Heavy infestations reported in several parts of the State, and severe damage is expected.

New York. N. Y. State Coll. Agr. News Letter (May 13): Flies were laying eggs on Long Island cabbage and cauliflower from May 7 to 10. (May 20): Adults and eggs reported in Monroe County, western New York, on May 13 and 15. (May 27): Eggs could be found around practically every early set cabbage plant and in most seedbeds in Niagara County from May 20 to 22. Small numbers of eggs were observed on May 20 in Erie County, being numerous in the Boston area. On May 24 they were numerous in the Orchard Park section. In Orleans County adults have been laying eggs in seedbeds, but no heavy infestation has been observed.

Pennsylvania. H. E. Hodgkiss (May 25): Egg laying is about normal. Cold weather has delayed oviposition considerably.

Idaho. R. G. Fisher (May 8): Reported on May 4 that adults have been emerging for the last 2 weeks and are now abundant in the Moscow area.

SQUASH

SQUASH BUG (Anasa tristis Deg.)

Mississippi. C. Lyle (May 25): Heavy infestations on summer squash in Pearl River County.

SQUASH BEETLE (Epilachna borealis F.)

Louisiana. L. L. Neveu (May 22): One specimen collected on April 26 but not found on a host plant.

ASPARAGUS

ASPARAGUS BEETLES (Crioceris spp.)

New York. N. Y. State Coll. Agr. News Letter (May 27): C. asparagi L. and C. duodecimpunctata L. appeared last week in destructive numbers in quite a few plantings in Columbia and Schenectady Counties, in eastern New York. First eggs seen on May 21 and expected to hatch in the Hudson Valley this week. Control measures necessary in three fields of young asparagus. Also present in western Suffolk County. C. asparagi and C. duodecimpunctata are noted in numbers during the last week in Wayne County, in western New York.

Pennsylvania. H. E. Hodgkiss (May 25): C. asparagi reported as more abundant than usual.

South Carolina. J. G. Watts (May): Little increase of C. asparagi on asparagus at Blackville during May. Damage of little consequence.

Illinois. W. P. Flint (May 21): C. asparagi reported as very abundant in northern Illinois, especially in large fields.

Utah. G. F. Knowlton (May 17): Injury by C. asparagi is severe in parts of northern Davis and Weber Counties.

Washington. R. D. Eichmann (April 29): C. asparagi was becoming quite prevalent in the Prosser-Walla Walla area on April 16. Mating observed, and some eggs found on small asparagus stalks.

R. S. Lehman (May 18): Large larvae of the first brood of C. asparagi are doing considerable feeding on asparagus in the vicinity of Walla Walla.

ASPARAGUS MINER (Agromyza simplex Loew)

Washington. R. D. Eichmann (April 29): Mating observed in the Prosser-Walla Walla area. Flies numerous in all asparagus fields visited on April 16 and 17.

WATERCRESS

WATERCRESS LEAF BEETLE (Phaedon aeruginosus Suffr.)

Massachusetts. A. E. Stone (May 29): Severe outbreak reported from a greenhouse in Seekonk. Crop practically destroyed in one house and badly damaged in other.

ONIONS

ONION MAGGOT (Hylemya antiqua Meig.)

Oregon. B. G. Thompson (May): Early planted onions severely injured in the Willamette Valley. Appear to be more numerous than for many years.

SWEETPOTATO

SWEETPOTATO FLEA BEETLE (Chaetocnema confinis Crotch)

Mississippi. C. Lyle and assistants (May 25): Reported as present in large numbers in sweetpotato beds in Lamar County. Injury also reported from the Meridian area and from Calhoun County.

Louisiana. K. L. Cockerham (May 4): Present in injurious numbers about May 1 at Sunset, Saint Landry Parish, southwestern Louisiana, attacking sweetpotato plants on seedbeds and morning-glory plants on experimental beds. Control measures necessary on morning-glory.

STRAWBERRY

STRAWBERRY WEEVILS (Curculionidae)

Utah. G. F. Knowlton (May 9): Brachyrhinus ovatus L. and a few B. rugosostriatus Goeze are damaging strawberry patches in Salt Lake County.

Idaho. J. R. Douglass (May 18): Complaints received from growers in the Twin Falls area that B. ovatus is causing serious injury to old strawberry plantings.

Washington. L. G. Smith (May 22): On May 13 weevils were reported in the grub stage and as feeding on roots, causing plants to appear wilted, in the Veradale vicinity of Spokane County. Light attack observed in the Bellingham and Lynden area on May 10. Reported as attacking strawberries with severe damage in some places on May 2. First year this insect has caused noticeable injury. Number seems to be highest in sections of the fields having gravelly soils. They were transforming from the larval to the pupal stage. Infestation located in the McKinley district of Yakima County about 5 miles west of Toppenish. One adult taken from the foliage of a strawberry plant on April 9 in the Montesano district of Grays Harbor County.

STRAWBERRY WEEVIL (Anthonomus signatus Say)

New York. N. Y. State Coll. Agr. News Letter (May 27): In eastern New York weevils were observed doing damage on May 17 in Ulster County, on May 16 in Dutchess County, on May 27 in Suffolk County, and on May 21 in Orange County.

Delaware. L. A. Stearns (May 15): Much less abundant this year throughout the strawberry area in southern Delaware, in Sussex County, than in 1939.

Maryland. L. P. Ditman (May 15): The strawberry clipper is less numerous than last year, but considerable injury noticed in some places since May 10.

Tennessee. G. M. Bentley (May 23): Severe damage to strawberries on May 3 at Ripley, Lauderdale County. Two percent of the stems were attacked on May 6 at Milan, Gibson County. Reported from Portland, Sumner County, on May 7 no particular damage.

WESTERN GRAPE ROOTWORM (Adoxus obscurus villosulus Schr.)

Washington. W. W. Baker (May 13): This pest has previously appeared on the blossoms of strawberry but this is the first time that adults have been observed feeding on the foliage. Only a small section of a field at Sumner Pierce County, was infested, but the beetles were rather thick, 3 and 4 adults per plant being common and around 12 beetles found on some.

STRAWBERRY CROWN BORER (Tyloderma fragariae Riley)

Kentucky. W. A. Price (May 25): This continues to be a serious pest in strawberry patches.

STRAWBERRY FRUITWORM (Cnephasia longana Haw.)

Oregon. R. G. Rosenstiel (May 20): About two-thirds of the larvae in the Willamette Valley are in the last instar. Advancement is about the same as last year. Very few pupae found recently. Damage on strawberries and flax severe in some localities.

THRIPS (Thysanoptera)

Utah. G. F. Knowlton and F. C. Harnston (April 27): Severely injuring strawberries at Hurricane, Toquerville, and LaVerkin.

SPITTLE BUG (Philaenus leucophthalmus L.)

Washington. L. G. Smith (May 8): Eggs noticed hatching on April 9 in the Montesano district of Grays Harbor County. (May 22): Occurrence of spittle bugs reported on May 10 in the strawberry hill section near Elma, Grays Harbor County, in approximately the same numbers as last year.

E. C. Durdle (May 15): Strawberries and chrysanthemums attacked throughout Clark County on May 11, bugs having appeared about May 1.

MEALYBUGS (Pseudococcus sp.)

Montana. M. M. Afanasiev (April): Investigations into the nature of yellowing of strawberries in the Experiment Station at Bozeman during 1936-39 have led to the conclusion that mealybugs are responsible for the appearance on strawberries of the symptoms somewhat resembling crinkle disease.

RED SPIDERS (Tetranychus spp.)

Washington. L. G. Smith (May 8): Adults found attacking strawberries, with moderate to severe damage, on May 2 on the grounds of the Western Washington Experiment Station at Puyallup. Hop yards in the Yakima vicinity were visited on March 18 to determine where the mites were overwintering. A few were found in scars and crevices of old vines, but most of them were feeding on this year's growth of plantain and dock in and around edges of the field.

Oregon. H. E. Morrison (May 16): Adults and eggs of T. telarius L. were found to be abundant on strawberries at Corvallis.

SUGAR BEETS

SUGAR-BEET ROOT MAGGOT (Eurycephalomyia myopaeformis Roeder)

Idaho. J. R. Douglass (May 21): Adults now common in the Rupert-Paul area.

TOBACCO

TOBACCO FLEA BEETLE (Epitrix parvula F.)

Virginia. S. B. Fenne (May 18): Causing considerable injury to tobacco in plant beds, where they were not properly constructed, in eastern Virginia. Quite plentiful during the first week of May.

Florida. F. S. Chamberlin (May 6): Unusually scarce on newly set tobacco plant in the Quincy area.

Ohio. T. H. Parks (May 31): Reported today as seriously injuring young tobacco plants in plant beds in Brown County, southwestern Ohio.

Tennessee. L. B. Scott (May 23): Appeared in only an occasional tobacco plant bed in north-central Tennessee. Abundance less than normal, and damage of little consequence.

A DIPTERON (Exechia sp.)

Maryland. E. N. Cory (May 10): Reported on tobacco seedbeds at La Plata.

GARDEN SPRINGTAIL (Bourletiella hortensis Fitch)

Massachusetts. A. W. Morrill, Jr. (May 21): One infestation at Westfield was more severe than ever seen before by the reporter.

Connecticut. A. W. Morrill, Jr. (May 21): A few growers have complained about damage.

HOPS

HOP PESTS (Coleoptera)

Oregon. H. E. Morrison (May 12): A 14-acre hop yard at Salem reported as being infested by Prionus californicus Mots. and Polyphylla decemlineata Say, about 75 percent of the plants having their roots attacked by the larvae. Plants eventually killed.

COTTON INSECTS

BOLL WEEVIL (Anthonomus grandis Boh.)

South Carolina. F. F. Bondy and C. F. Rainwater (May 4): Very few weevils active in the cages in Florence County, and none caught on the screen trap nor in the trap crop. (May 25): Still scarce in Florence County. One was caught in the field of the experiment station.

Georgia. P. M. Gilmer (May 4): Only 2 live weevils seen in the field this spring. (May 25): Very few indications found in Tift, Berrien, and Cook Counties. Undoubtedly the lightest infestation in 5 years at this season.

Correction.--T. L. Bissell (May): On page 105 of the Insect Pest Survey Bulletin dated May 1, 1940, "One boll weevil seen in flight" should read "One boll weevil caught in flight."

Florida. C. S. Rude (May 11): For the week ended May 7, 1938, weevils were observed in stub cotton in Marion and Alachua Counties; for the week ended May 6, 1939, weevils were reported in Lake and Marion Counties; reported this week in a few fields in Lake County, but reports not confirmed. (May 25): Infestation for the same period in 1938 and 1939 much heavier than it is this year. Examination of 10 cottonfields during the week in Lake County showed no weevils; 5 fields examined in Marion and Alachua Counties 1 weevil found in the experimental field at McIntosh, Marion County, and 3 weevils in the experimental field west of Gainesville, Alachua County; no infestations found in any of the other fields.

Mississippi. J. C. Clark, et al. (May 25): No weevils found in Washington County. Cotton near hibernation quarters is very small.

Louisiana. R. C. Gaines and assistants (May 11): Three taken on field flight screens in Madison Parish for week ended May 10. Two taken for the week ended May 17.

M. T. Young and assistants (May 25): Examination of cotton plants in Madison Parish on May 24 and 25 showed 29 weevils present on 12,000 plants or an average of 1 weevil per 414 plants. Two taken on field flight screens for week ended May 24, as compared with 2 in 1939 and 5 in 1938.

Texas. F. L. Thomas (May 1): It has been determined that an average of one-half the living weevils that survive the winter emerge from their shelter prior to May 1, the emergence usually amounting to about 3 out of every 10 weevils. This year only 1 out of 5,000 has emerged. (May 14): A few have been found in the fields. (May 21): Reported in 2 of 4 fields examined near wooded areas in Brazos County. None reported from Burleson, Calhoun, nor Fort Bend Counties, where examinations have been made. (May 28): Found to be numerous in spots, particularly near woods where winter shelter was available, in Brazos and McLennan Counties.

L. C. Fife (May 11): For the week ended May 4 in the Brownsville area, 1,500 squares were examined in 9 fields, showing an average of 2 percent punctured squares per field, with a maximum of 5 percent; for the week ended May 11, in 18 fields, 2,400 squares were examined, showing an average of 0.7 percent punctured squares per field, with a maximum of 4.5 percent.

R. W. Moreland, et al. (May 25): On May 23, 600 cotton plants just beginning to square were examined in a 3-acre field near Mart, McLennan County, and 9 weevils found.

A FLEA BEETLE (Systema taciata Say)

Georgia. H. O. Lund (May 25): At least 20 acres of very young cotton, 5 or 6 inches high, at Winder severely damaged. Often 5 or 6 beetles can be found on 1 plant. Infestations apparently very uniform over the fields involved. All in stubble last year.

Mississippi. C. Lyle (May 25): Serious damage caused to cotton in some fields in Webster County on May 24.

BOLLWORM (Heliothis armigera Hbn.)

Texas. L. C. Fife (May 4): Considerable damage caused to young seedling cotton in Raymondville and Rio Hondo. (Det. by C. Heinrich.)

PINK BOLLWORM (Pectinophora gossypiella Saund.)

Texas. W. T. Hunt, et al. (May): Specimens collected from cotton blooms on May 16 at Brownsville. (May 28): A larva collected on cotton at Santa Maria. (Both det. by C. Heinrich.)

COTTON LEAF WORM (Alabama argillacea Hbn.)

Mexico. R. L. McGarr (May 17): Specimens, thought to be the first found this season, collected on cotton at Matamoros on May 13. (Det. by C. Heinrich.)

SALT-MARSH CATERPILLAR (Estigmene acrea Drury)

Texas. C. R. Parencia (May 11): Much damage done to cotton in Calhoun County in fields bordered by pasture lands. (May 18): This pest has largely disappeared in Calhoun County.

LEPIDOPTEROUS PESTS

Texas. L. C. Fife (May 4): During the week, 5,175 mature green seed pods of Hibiscus cardiophyllus were examined, most of them being collected between Rio Grande City and Laredo. All of the samples inspected showed an infestation of Noctuella rufofascialis Steph., as high as 80 percent in some of them. Of 625 buds and young pods of okra examined from 5 fields in the Brownsville area, some were found to be infested with Crocidosema plebeiana Zell.

GARDEN WEBWORM (Loxostege similalis Guen.)

Mexico. F. F. Bibby and I. Moreno (May 11): Larvae observed feeding on cotton foliage at Ejido Revolucion, near Matamoros. (Det. by C. Heinrich.)

COTTON FLEA HOPPER (Psallus seriatus Reut.)

Georgia. P. M. Gilmer (May 11): Reported as present near Albany, in Dougherty County, whence control inquiry was received. Extent of infestation not reported. No other reports.

Louisiana. C. O. Eddy (May 22): Abundant in northwestern Louisiana on evening primrose and croton.

Texas. F. L. Thomas (May 1): The situation is rather uncertain, but has a tendency to appear menacing. (May 8): Adults have been steadily increasing among their favorite weed hosts and over the last week end these insects have been drifting on the strong winds. In Dallas, Hunt, Kaufman, and Van Zandt Counties, northern Texas, hatching in croton or goat weeds has been very abundant, but the insects have not had time to mature. (May 14): Not so abundant as last year in the cottonfields of southern Texas. During the last week there was an average of only 5 per 100 terminal buds in cotton in southern Texas, whereas a year ago at approximately the same time, there was an average of 18. Dry, cool weather has probably prevented hatching of many of the overwintered eggs in the croton weeds of that area. Hatching in south-central Texas has dropped off, while in the north-central part of the State it was abundant last week. (May 21): Flea hoppers have been transferring from early spring weeds to horsemint and cotton. No reports of damage received from the lower Rio Grande Valley, but in Calhoun County they are very abundant in cotton in a few instances. At Sugarland, in Fort Belknap County, they are beginning to breed in cotton and also in the oldest cotton of south-central Texas. Adults found in practically all bottom-land fields examined in the last-named area. (May 28): Flea hoppers have been increasing slowly and in damaging numbers in a few fields of the coastal counties. Examination of 21 fields in Calhoun County showed that more nymphs were present this week than last week, although the numbers of adults had slightly decreased.

R. W. Moreland, et al. (May 25): Five emerged in the cages in McLennan County during the period May 20 to 25, as compared to 31 for the period May 13 to 18, and 8,353 for the week ended May 11. Three nymphs were found in examining 600 cotton plants that are squaring near Mart.

APHIDS (Aphidae)

South Carolina. F. F. Bondy and C. F. Rainwater (May 18): Leaf and root aphids present on cotton in Florence County, the former doing little damage, while the latter are doing severe damage in some fields. (May 25): Leaf aphids have increased since last week and are doing some damage to seedling cotton.

Georgia. P. M. Gilner (May 18): Considerable increase in populations occurred this week in Tift, Cook, Berrion, and Lowndes Counties. No serious infestation, but colonies easily located in most fields. Parasitization by Lysiphlebus testaceipes Cress., amounted to 100 percent in many colonies. No colony completely free of the parasite, and adult individuals fairly common in almost any colony examined. A rather large number of colonies also supported larvae of Megilla sp., so that it is believed that the situation is well under control from natural causes.

Florida. C. S. Rude (May 18): Several fields in Lake County observed where the infestation had been extremely heavy. In every instance parasites and predatory insects have almost destroyed the aphids.

Mississippi. E. W. Dunnan, et al. (May 18): An examination of 600 seedling cotton plants in the 3-leaf stage in Washington County yielded 403 aphids, 102 plants being infested. This is the heaviest infestation ever observed at this time of the year.

J. C. Clark, et al. (May 25): Examination of 700 plants in the 5-leaf stage in Washington County yielded 5,508 aphids, 368 plants being infested.

C. A. Wilson (May 22): Observed as rather numerous on some of the small cotton in Oktibbeha County, probably owing to the cool weather of this spring.

Louisiana. M. T. Young and assistants (May 25): Present in all fields in Madison Parish, although numerous in only a few fields. Many destroyed by parasites.

Texas. F. L. Thomas (May 14): At present a heavy infestation is causing considerable damage to cotton planted in March in the Coastal Bend area. (May 28): Aphids have practically disappeared in southern Texas, but were increasing in many fields of north-central Texas.

P. A. Glick (May 18): Noticeable in most fields in McLennan County, wherever cotton has been chopped. An examination of 200 plants showed a total of 161 aphids.

R. W. Moreland, et al. (May 25): Aphids are increasing in most fields in McLennan County.

C. R. Parencia (May 11): Cotton being severely damaged in Calhoun County, there being a generally heavy infestation over this locality. Predators are now appearing, and some of the cotton beginning to react from damage. (May 25): Practically all gone from the variety test by May 21.

THRIPS (Thysanoptera)

Louisiana. M. T. Young and assistants (May 25): Damage noticed in a few fields in Madison Parish.

Texas. F. L. Thomas (May 21): Reported as having retarded the development of cotton on most of the acreage in the lower Rio Grande Valley and to have caused replanting in some instances. Until the recent rains thrips also had increased rapidly in the cottonfields of southeastern and south-central Texas.

L. C. Fife (May 4): Severe damage to seedling cotton observed in many fields between Brownsville and McAllen. Injury seems to be greatest in fields adjacent to vegetable crops.

P. A. Glick, et al. (May 18): Thrips noticeable in most fields in McLennan County, an examination of 200 plants showing a total of 231 thrips.

R. W. Moreland, et al. (May 25): Development of cotton retarded in a number of fields visited in McLennan County. In examining 25 cotton plants at each of 6 different points in a field, an average of 252 thrips was found per 100 plants.

FOREST AND SHADE-TREE INSECTS

PERIODICAL CICADA (Magicicada septendecim L.)

Pennsylvania. H. E. Hodgkiss (May 25): No emergence of Brood XIV in several counties where this brood was known to occur in 1923. Chimneys and openings under rocks in woods numerous. On May 16 a previously unknown colony was found in an apple orchard in Juniata County, where the nymphs are abundant just beneath the surface.

North Carolina. C. H. Hoffman (May 15): Emergence observed first on May 14 in Asheville, Buncombe County. Emergence holes and chimneys were seen as early as May 1, although no cast nymphal skins were found then.

Tennessee. A. C. Cole, Jr. (May 20): Adults just emerging at the University of Tennessee farm at Knoxville. Apparently not numerous.

W. F. Turner (May 21): Present on oak for about 4 miles, north of Martins Springs, Marion County. Taken in a peach orchard in Roane County on May 1 (Det. by P. W. Oen.).

FOREST TENT CATERPILLAR (Malacosoma disstria Hbn.)

Massachusetts. A. I. Bourne (May 24): Found hatching the first few days of May. This is later than usual.

New York. E. P. Felt (May 23): Observed in numbers in areas bordering the Catskills, particularly in Oneonta, Delhi, Kingston, and Liberty. These are all sections adjacent to mountain areas which were defoliated for two or three seasons in succession during the last few years. There seems to be a gradual spread in an easterly direction from mountain tops, where injury has been extended and damage to trees severe. At the present time so good-sized trees in Kingston have been defoliated.

N. Y. State Coll. Agr. News Letter (May 6): In the eastern part of the State these pests began hatching on April 28 in Orange County; fairly common but not serious on apple buds in Ulster County; first observed hatching on April 30 in Dutchess County.

Pennsylvania. H. E. Hodgkiss (May 25): Larvae on trunks of trees in Monroe County on May 17. Many larvae seen in Susquehanna County during the same week.

Mississippi. J. E. Lee (May 25): What threatened to be a heavy infestation in Pearl River County has about disappeared.

TENT CATERPILLARS (Malacosoma spp.)

Utah. G. F. Knowlton and F. C. Harmston (May 11): Damaging poplars and willows in several scattered localities of the State.

Washington. L. G. Smith (April 29): In a few observations on Vashon Island and along the highway between Seattle and Mount Vernon, very few eggs could be found. (May 8): Found attacking fruit trees, alders, and shrubs throughout Snohomish County on May 4. Just starting to feed in a few sections. Reported as attacking cherry trees with light damage on May 4 in the East Sound area of San Juan County. First caterpillars appeared earlier this year than last. (May 15): Reports from all parts of Pierce County telling of attacks on all fruit trees. Larvae attacking cherry and alder in the Willapa Valley on May 13.

Oregon. B. G. Thompson (May 20): Larvae of M. pluvialis Dyar more numerous than for many years. In the coast foothills of the Willamette Valley they are attacking fruit trees, ornamentals, and alders. Many small apple orchards completely defoliated. Most of this damage occurred within the last 2 weeks. Stated that they are very abundant on alder, willow, and apple from Triangle Lake to Florence. Many trees completely defoliated.

CANKERWORMS (Geometridae)

New York. N. Y. State Coll. Agr. News Letter (May 13): In western New York cankerworms were observed in the vicinity of Ithaca and in Monroe, Orleans, and Wayne Counties. (May 27): In Rockland County, eastern New York, spring cankerworms first observed on May 18. Quite a number found since then.

Pennsylvania. H. E. Hodgkiss (May 25): Female adults of the fall cankerworm (Alsophila ponetaria Harr.) taken on April 25 and eggs were being deposited on May 1. Eggs abundant in all counties at that time. During the week beginning May 12 hatching was general throughout the central and southeastern counties.

Ohio. T. H. Parks (May 25): Elms and other trees along streams near Columbus being severely damaged by larvae of the fall cankerworm and the spring cankerworm (Paleacrita vernata Peck). Fall species much more abundant than spring species.

Kentucky. W. A. Price (May 30): Very abundant in central Kentucky on elm, hackberry, locust, and wild cherry.

Michigan. R. Hutson (May 21): Fall cankerworms numerous on elms in East Lansing.

Iowa. C. J. Drake (May 21): Cankerworms reported in scattered localities over the State. Most of them seem to be the fall or spring cankerworm but some specimens belong to other species.

Missouri. L. Haseman (May 21): Unusually severe infestation, which seems to be general throughout most of the State, has already begun to show up with severe shredding of the foliage, especially on elms and untreated fruit trees.

North Dakota. J. A. Munro (May 23): Adults of the spring cankerworm observed ascending trees late in April in the vicinity of Fargo.

Nebraska. M. H. Swenk (May 17): First report of defoliation of trees by P. vernata received on May 11 from Furnas County, where some 15-year-old American elms were being attacked.

Kansas. H. J. Hungerford (May 20): P. vernata is doing little damage in Lawrence, but is fairly abundant in some spots in the surrounding country.

ELM SPANWORM (Ennomos subsignarius Hbn.)

Connecticut. G. H. Plumb (May 21): This is the third year that this infestation in a red maple-elm-yellow birch swamp at Monroe has been under observation. Larvae hatched within the last few days and many leaves already have had small holes eaten in them. They appeared to be most abundant on elm.

PALE TUSSOCK MOTH (Halisidota tessellaris A. & S.)

Georgia. T. L. Bissell (May 28): Large numbers of moths are coming to lights at Experiment, central Georgia.

GYPSY MOTH (Porthetria dispar L.)

Maine. F. H. Lathrop (May 16): First eggs observed hatching at Monmouth, Kennebec County. This is about 4 days earlier than last year. Egg masses abundant in some places in the woods.

Vermont. S. S. Crossman (May 4): In the township of Salisbury, Addison County, an infestation was located about 1,700 feet from an assembling cage at which one male gypsy moth was taken last summer.

H. L. Bailey (May 23): Newly hatched larvae were found clustered on egg masses in Putney and Brattleboro, Windham County, on May 18. Some larvae were feeding on low foliage at Vernon on May 18 in the southeastern part of Vermont. Fair hatch observed at Putney from egg masses well above snow line.

- Massachusetts. S. S. Crossman (April 13): During the week an infestation of about 50 egg clusters was found in Clarksburg, Berkshire County. The center of this infestation is in scrubby hardwood growth.
- Connecticut. S. S. Crossman (May 4): Two new infestations found in Cornwall, Litchfield County, one of which is located at a relatively high elevation in growth largely favored as food plants.
- Pennsylvania. S. S. Crossman (April 20): During the week a small infestation, covering approximately 2 acres, was located in Mauch Chunk, Carbon County.

PAINTED HICKORY BORER (Cyllene caryae Gahan)

- Illinois. A. F. Satterthwait (May): Conspicuous in several Japanese beetle traps at Urbana-Champaign on May 13.

ASH

AN APHID (Prociphilus fraxinifolii Riley)

- Arizona. C. D. Lebert (May 21): Observed in several places in the Phoenix area, causing serious leaf curl on ash trees. More abundant in this area than in previous years.

ASH FLOWER GALL (Eriophyes fraxiniflora Felt)

- New York. R. E. Horsey (May): Very numerous on May 9 on a number of large white ash in an ornamental planting at Rochester.

AN ASH SAWFLY (Tomostothus multicoloratus Rohw.)

- Oklahoma. F. A. Fenton (May 24): Reported in Cleveland.

CARPENTER WORM (Prionoxystus robiniae Peck)

- North Dakota. J. A. Munro (May 23): Injury recently caused in a Chinese elm, according to a recent survey of trees on the campus of North Dakota Agricultural College. First time observed on this host. Other trees infested were green ash, American elm, and cottonwood, green ash being the most heavily infested.

BIRCH

BRONZED BIRCH BORER (Agrilus anxius Gory)

- Iowa. C. J. Drake (May 21): Very abundant in Des Moines and has been doing considerable damage for about 2 years in that city.

BOXELDER

.BOXELDER APHID (Periphyllus negundinis Thos.)

Utah. G. F. Knowlton and H. F. Thornley (May 19): Extremely abundant on many trees in northern Utah.

ELM

ELM LEAF BEETLE (Galerucella xanthomelaena Schr.)

General. E. A. Back (May 25): Specimens received from houses throughout May from the following States: Massachusetts, Rhode Island, Connecticut, New York, and Pennsylvania.

Rhode Island. A. E. Stene (May 29): Unusual number of complaints during the last few months of these beetles in houses.

Massachusetts. A. I. Bourne (May 24): Unusual number of complaints generally during winter and spring of beetles in houses. Many specimens sent in.

Utah. G. F. Knowlton (May 20): Now injuring elm foliage at Smithfield.

ELM FLEA BEETLES (Altica spp.)

Massachusetts. A. I. Bourne (May 24): A. ulmi Woods reported as very abundant in and around Pittsfield, Berkshire County, as well as in other parts of western Massachusetts. Found in large numbers near base of elms and under loose flakes of bark during early spring.

Pennsylvania. G. B. Slesman (May 24): Locations, which were heavily infested with overwintering adults of A. carinata Germ. in the Philadelphia area, were checked during the last week. Heavy defoliation of American elm observed in many instances. Definite areas showed complete defoliation while other parts of trees showed light damage. No larvae found. (Det. by T. I. Guyton.)

ELM SAWFLY (Cimbex americana Leach)

Oklahoma. F. A. Fenton (May 24): Reported from Cushing.

WOOLLY ELM APHID (Eriosoma americanum Riley)

Utah. G. F. Knowlton and F. C. Harnston (May 11): American elm leaves being rolled at Logan and Richmond.

G. F. Knowlton (May 25): Curling elm leaves on several elm trees at Cedar City.

EUROPEAN ELM SCALE (Gossyparia spuria Mod.)

Wisconsin. E. L. Chambers (June 1): More abundant than usual in several localities in southeastern Wisconsin.

Iowa. C. J. Drake (May 21): Reported on American elm at Marshalltown and Cherokee.

Utah. G. F. Knowlton (May 31): Damaging elms at Logan and Richmond.

FIR

AN APHID (Dilachnus pseudotsugae Wilson)

Washington. L. G. Smith (May 8): Attacking firs and shrubs in King County on May 2.

HACKBERRY

HACKBERRY NIPPLE GALL (Pachypsylla coltidis-nanna Riley)

Oklahoma. F. A. Fenton (May 24): Reported from Ponca City.

LARCH

LARCH CASEBEARER (Coleophora laricella Hbn.)

New York. R. E. Horsey (May 16): Appearing on American, European, Japanese, and Dahurian larches at Rochester, and is more numerous than usual, even on treated trees. Nearly every leaf was half eaten on several nearby neglected seedling larches. A flock of ruby-crowned kinglets was very active in destroying this pest.

LOCUST

LOCUST LEAF MINER (Chalepus dorsalis Thunb.)

Virginia. A. M. Woodside (May 22): Very common in Augusta and Rockingham Counties. Leaves show much evidence of feeding.

LOCUST BORER (Cyrtene robiniae Forst.)

Nebraska. M. H. Swenk (May 17): Found damaging locust trees in Cass County on April 17.

CALICO SCALE (Locanium cerasorum Chll.)

Arizona. C. D. Lebert (May 21): A scale, probably this species, was found heavily infesting native locust trees in Superior.

MAPLE

APHIDS (Aphididae)

Utah. G. F. Knowlton (May 10): Sycamore maple at Logan damaged. (May 15): Injuring silver-maple foliage at Centerville.

Mississippi. C. Lyle (May 25): Specimens of the woolly alder aphid (Prociphilus tessellatus Fitch) received from Pontotoc County, where a maple tree was heavily infested.

COTTONY MAPLE SCALE (Pulvinaria vitis L.)

Texas. R. K. Fletcher (May 17): Found on May 4 in Denton County.

Washington. J. Keene (May 29): Found attacking boxelder in the Clarkston Heights district of Asotin County on May 24. This is the first infestation noted by the writer and the only time seen on boxelder.

MAPLE BLADDER GALL (Phyllocoptes quadripes Shim.)

Pennsylvania. H. E. Hodgkiss (May 25): Mite galls on soft maples were attracting more attention on May 20 than usual.

OAK

AN OAK LEAF ROLLER (Argyrotoxa semipurpurana Kearf.)

Connecticut. E. P. Felt (May 23): Larvae abundant in the Stamford area, and considerable injury may be expected.

GOLDEN OAK SCALE (Asterolecanium variolosum Ratz.)

Wisconsin. E. L. Chambers (June 1): Reported on oak in Milwaukee County. Control measures used in the suburbs of Milwaukee.

PINE

EUROPEAN PINE SHOOT MOTH (Rhyacionia buoliana Schiff.)

General. E. P. Felt (May 23): Becoming somewhat common in southwestern New England and southeastern New York.

Michigan. R. Hutson (May 21): Reported at Detroit and Saint Joseph.

SILVER-SPOTTED HALSIDOTA (Euschausia argentata Pack.)

Washington. L. G. Smith (April 29): Severe defoliation on jack pine trees on Vashon Island was observed on March 20. (May 29): Reported as attacking Douglas fir in the vicinity of Bellingham on May 23. This is the first time they have been noted in that area.

A LOOPER (Eliopia pellucidaria G. & R.)

Georgia. H. O. Lund (May 7): Few specimens taken on pines in Athens. (Det. by H. W. Capps.)

A PINE SAWFLY (Noodiprion americanum Leach)

Virginia. L. A. Hetrick (May 25): Overwintered eggs started hatching in the field on May 3. Larvae in fourth instar on May 25. Defoliation becoming noticeable. Infestation is now known from Caroline, King and Queen, King William, and Mathews Counties.

RED-HEADED PINE SAWFLY (Noodiprion lecontei Fitch)

Alabama. G. M. Bentley (May 7): Specimens collected at Wilson Dam. Larvae taken from overwintered larval cases found in duff underneath short-leaf and loblolly pines. Dipterous parasites reared from them identified by D. G. Hall as Spathimeigenia spinigera Towns. and Phorocera sp.; hymenopterous parasites identified by R. A. Cushman as Spilocryptus lophyri Nort. and Stylocryptus subclavatus Say.

A PINE ROOT WEEVIL (Hylobius radicis Buch.)

General. E. P. Felt (May 23): Becoming somewhat generally established in scattered areas in southwestern New England and in southeastern New York, working particularly on Scotch and Austrian pines and in some cases seriously damaging a considerable proportion of the planting.

PALES WEEVIL (Hylobius pales Hbst.)

Massachusetts. A. I. Bourne (May 24): Several samples of characteristic injury on branches of pine received from various parts of the State.

WESTERN PINE BEETLE (Dendroctonus brevicornis Lec.)

Washington. R. P. Benson (May 9): Yellow pine trees attacked in the Elberton area, where light damage has occurred.

PINE BARK APHID (Pinus strobi Htg.)

General. E. P. Felt (May 23): Somewhat common in the area about Boston, Mass., and also in southwestern New England.

Maryland. E. N. Cory (May 23): Attacking white pine at Hyattsville.

Michigan. R. Hutson (May 21): Reported in Three Rivers, Jackson, and Kalamazoo.

PINE SPITTLE BUG (Aphrophora parallela Say)

Pennsylvania. G. B. Slesman (May 24): Heavy infestations occurring on pine trees in both nursery-row and forest plantings. Severe damage noted last fall.

COOLEY'S SPRUCE GALL (Adelges cooleyi Gill.)

Utah. G. F. Knowlton (May 10): Reported as damaging needles at Ogden. Last year they caused pine-cone galls on Colorado blue spruce and white spruce.

PINE NEEDLE SCALE (Chionaspis pinifoliae Fitch)

Vermont. H. L. Bailey (May 23): Reported on mugho pine at Brattleboro, Windham County, southeastern Vermont, and Middlebury, Addison County, western Vermont. Eggs under specimens received from latter points unhatched on May 15.

Minnesota. A. G. Ruggles (May 21): Many inquiries received about pine needle scale on ornamental pines and spruce.

Nebraska. M. H. Swenk (May 17): Reported from Hitchcock and Scotts Bluff Counties on April 16 and May 2, respectively.

WOOLLY PINE SCALE (Pseudophilippa quaintancii Ckll.)

Mississippi. C. Lyle (May 25): Specimens recently received from Hinds County.

POPLAR AND WILLOW

COTTONWOOD LEAF BEETLE (Chrysomela scripta F.)

North Dakota. J. A. Munro (May 27): Specimens received with the report that they are seriously defoliating young cottonwood-tree stock at Mandan. Report indicates that beetles are prevalent along the Missouri River bottom lands.

SAWFLIES (Tenthredinidae)

Washington. L. G. Smith (May 8): Pupae collected on January 3 under willow trees. Reported that they had caused severe damage to shrubbery in the Thornton area.

POPLAR AND WILLOW BORER (Sternochetus lapathi L.)

Pennsylvania. H. E. Hodgkiss (May 25): Adults and larvae observed in Union County on May 14.

Michigan. R. Hutson (May 21): Reported at Detroit, East Lansing, and Owosso.

Washington. H. Zwisler (May 24): Native willow trees attacked in the Vancouver area, where severe injury is occurring. Some limbs are dying. Ground is covered with a mass of sawdust.

A EUROPEAN BORER (Saperda populnea L.)

California. P. Simmons and D. F. Barnes (April 19): A poplar in northwestern Tulare County was well infested with adults resting on foliage and twigs. Foliage extensively perforated with feeding holes, possibly made by beetles. (Det. by W. S. Fisher.)

SPRUCE

SPRUCE NEEDLE MINERS (*Eucosmidae*)

Michigan. R. Hutson (May 21): Taniva albolineana Kearf. and Epinotia nanana Treit. reported at Detroit.

Minnesota. A. G. Ruggles (May 21): More inquiries than ever before at this time of the year about T. albolineana.

EUROPEAN SPRUCE SAWFLY (Diprion polytomum Htg.)

Vermont. H. L. Bailey (May 23): On May 17 pupation had occurred in nearly 50 percent of cocoons found at Dover, Windham County, southeastern Vermont. Cocoons moderately abundant in range outside of last year's heavy infestation.

SPRUCE MITE (Paratetranychus uniunguis Jacobi)

Kentucky. W. A. Price (May 25): Red spider prevalent on evergreens in the central part of the State.

Michigan. R. Hutson (May 21): Reported at Freedland.

TULIPTREE

TULIPTREE SCALE (Toumeyella liriodendri Gmel.)

General. E. P. Felt (May 23): Young have wintered in considerable numbers and it appears that they will be at least moderately injurious in areas within 50 miles of New York City.

TUNG-OIL TREE

CORN EAR WORM (Heliiothis armigera Hbn.)

Florida. J. R. Watson (May 22): Mining young tung nuts in a grove in which a cover crop of vetch had just been disked in, undoubtedly the cause of driving the caterpillars to the tung nuts.

INSECTS AFFECTING GREENHOUSE

AND ORNAMENTAL PLANTS

BLACK VINE WEEVIL (Brachyrhinus sulcatus F.)

Kentucky. W. A. Price (May 10): Severe infestation discovered at Lexington early in May on Taxus shipped from New England. Insect not previously found in Kentucky. (Det. by W. H. Anderson and L. L. Buchanan.)

STRAWBERRY ROOT WEEVIL (Brachyrhinus ovatus L.)

Oregon. J. Schuh (May 15): Twenty percent of one rose planting at Portland killed by larvae. Attacks occurred where nursery stocks of prunes and cherries were planted last year.

A RHINOCEROS BEETLE (Strategus julianus Burn.)

Texas. P. Clark (May 6): Specimen collected in McAllen destroying the roots of a century plant. (Det. by E. A. Chapin.)

MEXICAN MEALYBUG (Phenacoccus gossypii Towns. & Ckll.)

Maryland. F. F. Smith (April 13): Collected on Lilium longiflorum at Beltsville on April 4. (Det. by H. Morrison.)

CITRUS MEALYBUG (Pseudococcus citri Risso)

Ohio. E. W. Mendenhall (May 22): Injurious on Chinese evergreen plants (Aglaonema modestum) in houses and greenhouses at Columbus.

A PSYLLID (Psyllidae)

Washington. W. W. Baker (May 19): Small undetermined species of psyllid was common on Scotch broom on Vashon Island, King County, today; adults and cast skins of nymphs shaken in numbers from tips of plants. No evidence of appreciable effect on the plant.

A SCALE (Parlatoria protous Curt.)

Maryland. E. N. Cory (April 18): Attacking an orchid at Baltimore.

ARBORVITAE

ARBORVITAE APHID (Cinara tujeofilina Del G.)

Mississippi. C. Lyle (May 25): Reports of injury in various parts of the State were received.

California. P. Simmons (March 27): Three plants of oriental arborvitae in Fresno, when examined today, were found to be heavily infested by this aphid. Many ants accompanying infestation were identified by M. R. Smith as Solenopsis xyloni var. maniosa Whlr.

AZALEA

AZALEA WHITEFLY (Alcurodes azaleae B. & M.)

Virginia. F. F. Smith (April 24): Specimens collected on two species of azalea at Norfolk on April 19. (Det. by Louise M. Russell.)

AZALEA SCALE (Eriococcus azaleae Const.)

Mississippi. C. Lyle (May 25): Specimens received from Leflore County on May 14.

PALMERWORM (Dichomeris ligulella Hbn.)

Alabama. L. L. English (May 6): Specimens received from Spring Hill. Reared from larvae feeding on the foliage of azalea. (Det. by J. F. G. Clarke.)

A MITE (Paratetranychus ilicis McG.)

Virginia. F. F. Smith (April 24): Found on azalea at Norfolk on April 19. (Det. by E. A. McGregor.)

BOXWOOD

BOXWOOD LEAF MINER (Monarthropalpus buxi Laboulb.)

Maryland. E. N. Cory (May 15): Reported on old English box from Westminster, Carroll County, and from Baltimore County.

Virginia. A. M. Woodside (May 23): Less abundant than a year ago at Staunton. Adults began to emerge about May 16.

Washington. E. P. Drockey (May 22): Severe damage to boxwood reported in the vicinity of Seattle. Adults were seen emerging from infested shrubs in great numbers on May 10.

CAMELLIA

BROAD MITE (Hemitarsonemus latus Banks)

Massachusetts. W. B. Becker (April 23): Specimens of camellia leaves received. Reported as causing some concern to one of the owners of a large greenhouse in Hadley. (Det. by H. E. Ewing.)

COLUMBINE

COLUMBINE LEAF MINER (Phytomyza minuscula Gour.)

New Jersey. M. D. Leonard (May 29): A number of garden plants at Ridgewood found with some leaves entirely uninfested, whereas others had every leaf heavily mined.

COTONEASTER

A MOTH (Laspeyresia sp.)

Virginia. F. R. Fround (May 9): Specimens of a cocoon, pupa, and adult moth, which attacks cotoneaster, received from Richmond on April 9. Moth emerged on April 14. (Det. by C. Heinrich.)

GLADIOLUS

GLADIOLUS THRIPS (Taeniothrips simplex Morison)

Florida. J. R. Watson (May 22): Severe damage to gladiolus in the southwestern part of the State.

Wisconsin. E. L. Chambers (June 1): Growers report considerable injury to stored corns all winter, wherever storage was warm.

Louisiana. C. R. Blair (May 22): Found to be doing serious damage in one place in Baton Rouge.

HOLLY

HOLLY LEAF MINER (Phytomyza ilicis Curt.)

General. E. P. Felt (May 23): Rather abundant on holly in southwestern New England and in the southeastern part of New York.

Washington. E. P. Dreckey (May 22): Reported as attacking holly severely. Flies have been emerging for several days.

IVY

OLEANDER SCALE (Aspidiotus hederæ Vallot)

Ohio. E. W. Mendenhall (May 22): Found quite bad on ivy plants in houses at Columbus.

JUNIPER AND CEDAR

JUNIPER SCALE (Diaspis carueli Targ.)

Pennsylvania. H. E. Hodgkiss (May 25): Generally very abundant.

Michigan. R. Hutson (May 21): Reported at East Lansing and Grand Rapids.

JUNIPER WEBWORM (Dichomeris marginellus F.)

Maryland. E. N. Cory (May 15): Found attacking juniper at Baltimore.

Michigan. R. Hutson (May 21): Reported at Jackson, Kalamazoo, and Lansing.

JUNIPER MIDGE (Contarinia juniperina Felt)

Kansas. H. D. Hungerford (May 20): Has caused much concern in Lawrence in the last few years, but scarce at present.

DEODAR WEEVIL (Pissodes nemorensis Germ.)

Mississippi. C. Lyle (May 25): Specimens observed on trees in Grenada County.
Some damage observed in Oktibbeha County.

LILAC

BORERS (Podosesia spp.)

North Dakota. J. A. Munro (May 23): Ash and lilac borer moderately abundant in lilac hedges at Fargo.

WHITE PEACH SCALE (Aulacaspis pentagona Targ.)

North Carolina. J. O. Rowell (May 11): Specimens of lilac twigs infested with scales received from Mount Airy. (Det. by H. Morrison.)

OYSTERSHELL SCALE (Lepidosaphes ulmi L.)

General. E. P. Felt (May 23): Especially prevalent on ash and lilac in an area within 50 miles of New York City.

Maryland. E. N. Cory (May 27): Reported as attacking lilac at Baltimore.

Wisconsin. E. L. Chambers (June 1): Very abundant in several cities in southern Wisconsin on lilac, cotoneaster, and apple.

RHODODENDRON

RHODODENDRON BORER (Conopia rhododendri Dougl.)

Pennsylvania. E. P. Felt (May 23): Some injury caused to rhododendron stems in the Philadelphia area.

Maryland. E. N. Cory (May 27): Reported as attacking rhododendron at Westminster.

ROSE

APHIDS (Aphidae)

Maryland. L. P. Ditman (May 25): Aphids injuring roses in Prince Georges County.

Mississippi. C. Lyle (May 25): Reports of injury to rose from various parts of the State.

Missouri. L. Haseman (May 21): Slow to appear this spring but since the middle of May definite damage has been done to roses.

Utah. G. F. Knowlton (May 13): Pink and green rose-potato aphid (Macrosiphum solanifolii Ashm.) damaging apical growth of a number of rose bushes in northern Utah.

Nevada. G. G. Schweis (May 20): Heavy damage to roses.

Washington. J. C. Dodge (May 8): Gardens and rose bushes attacked in the Outlook and Ahtanum districts on March 22 and 23.

A LEAF CHAFER (Diplotaxis frondicola Say)

Mississippi. C. Lyle (May 25): Adults that were feeding on rose bushes received from Lauderdale County the last week in April.

SNOWBALL

APHIDS (Aphidae)

New York. M. D. Leonard (May 27): Recently several large bushes at Jackson Heights have become moderately infested with Aphis runicis L.

Utah. G. F. Knowlton (May 10): A. runicis and A. viburnicola Gill. are seriously damaging snowball flowers and leaves in several northern Utah localities. At Tooele the infestation by A. runicis is more serious than that by A. viburnicola.

I N S E C T S A T T A C K I N G M A N A N D

D O M E S T I C A N I M A L S

MAN

MOSQUITOES (Culicinae)

Mississippi. G. L. Bond (May 25): Unusually numerous around streams in the coastal counties.

Tennessee. G. M. Bentley (May 23): At Knoxville larvae, pupae, and adults of the following mosquitoes were found: The tree hole mosquito (Aedes triseriatus Say) on April 26; the northern house mosquito (Culex pipiens L.) on April 28; and the southern house mosquito (C. quinquefasciatus Say) on April 30. Adults of the yellow-fever mosquito (A. aegypti L.) present at Knoxville on May 12.

Ohio. E. W. Mendenhall (May 23): C. pipiens present and annoying in Columbus and vicinity.

Utah. G. F. Knowlton and assistants (May): Mosquitoes abundant and annoying in northern Utah.

California. C. C. Deonier (May 1): Specimen of A. varipalpus Coq. collected on April 20 in a house at Nice. (Det. by A. Stone.)

SANDFLIES (Culicoides spp.)

Virginia. L. A. Hotrick (May 25): Very annoying in the vicinity of West Point from May 16 to 22.

Florida. F. C. Bishopp (May 7): C. mississippiensis Hoffm. collected from man at Panama City. (Det. by A. Stone.)

Louisiana. F. C. Bishopp (May 25): Four sandflies, C. biguttatus Coq. taken from a horse ridden into a swamp at Mer Rouge for purpose of collecting specimens. (Det. by A. Stone.)

A GNAT (Chaoborus astictopus D. & K.)

California. A. W. Lindquist (May 20): Larval population in the bottom mud of Clear Lake during the latter part of April indicated that approximately 48 percent fewer larvae were present a year ago. The greater number of gnats that have emerged, together with unusually high temperatures and absence of wind, is resulting in considerable oviposition.

HUMAN FLEA (Pulex irritans L.)

West Virginia. F. C. Bishopp (April 25): Twenty specimens submitted from around a barn and on man at Fort Gay. Infestation reported as heavy and extremely annoying. These are the first specimens identified from this State, to the writer's knowledge. (Det. by Helen L. Trembley.)

HEAD LOUSE (Pediculus humanus humanus L.)

Florida. F. C. Bishopp (May 25): Forty-eight cases of infestation out of about 8,000 school children, examined during the last year, have been recorded in Orange County.

A BUFFALO GNAT (Simulium vittatum Zett.)

Idaho. J. R. Douglass (April): About a dozen gnats were sent in from Twin Falls. Insects reported as having caused severe lesions on face and wrists of the patient. (Det. by A. Stone.)

BUGS (Cimex spp.)

West Virginia. E. A. Back (May 25): Specimens of C. pilosellus Horv. were taken crawling on walls of room beneath attic infested with bats on May 8 in Morgantown.

Iowa. E. A. Back (May 25): C. adjunctus Barb. collected in room of house in Muscatine, but reported as not attacking man. (Det. by H. G. Barber.)

Utah. G. F. Knowlton (May 25): Several reports of bedbug (C. lectularius L.) annoyance, particularly in log houses, received from Panguitch and other parts of Garfield County.

TROPICAL RAT MITE (Liponyssus bacoti Hirst)

Virginia. F. R. Fround (May 5): Taken from clothing of child living in Richmond. (Det. by H. E. Ewing.)

CHIGGER (Eutrombicula alfreddugesi Oud.)

Nebraska. M. H. Swenk (May 1): Request for information on eradication from yard in Douglas County.

AMERICAN DOG TICK (Dermacentor variabilis Say)

Missouri. L. Haseman (May 21): From May 1 to about May 15 in the central part of the State, this pest showed up in unusual abundance on dogs. Decreased since middle of month.

Nebraska. M. H. Swenk (May 17): Report from Colfax County on April 18 that dog was infested.

CATTLE

SCREWORM (Cochliomyia americana C. & P.)

Florida. W. V. King (May 22): Despite many inquiries, infestations considerably fewer in Orange County than at same time last year. Only two cases reported from Levy County; one at Melbourne early in April; one in Flagler County; and three in Volusia County.

Texas. R. Melvin (May 10): Three cases in lambs on a ranch near Menard. (May 13): Five cases found in animals at Menard. Reports received that flies are becoming active.

E. W. Laake (May 23): No reports of infestation at Dallas. Eighty-two C. macellaria F. taken from one sheep, but after infested herd was shorn further infestation reported.

HORN FLY (Haematobia irritans L.)

Florida. A. L. Brody (May 20): One hundred or more flies noticed per animal on experimental farm at Panama City. On May 16 this number increased to 1,000 per animal. On May 15 hundreds were seen on cattle on the range at Gulf Beach, near Panama City.

Mississippi. G. L. Bond (May 25): Reported as annoying cattle in Harrison and Hancock Counties.

HORSEFLIES (Tabanus spp.)

Florida. A. L. Brody and E. E. Rogers (May 25): Tabanus sp. still active in vicinity of Panama City.

Mississippi. C. Lyle (May 25): Horseflies, probably T. fuscopunctatus Macq., were annoying cattle in Oktibbeha County.

A DEERFLY (Chrysops sp.)

Florida. A. L. Drody and E. E. Rogers (May 25): Still very active on cattle in the vicinity of Panama City.

OX WARBLE (Hypoderma spp.)

Utah. G. F. Knowlton (May 16): Some dairy cows at Richmond had a number of grubs under skin of their backs.

Washington. R. Roffler (April 29): Noticed attacking cattle throughout Wahkiakum County on March 30, which is earlier than usual according to the report or.

E. Heinemann (May 8): Abundant on cattle near Odessa, in Lincoln County, on April 10.

L. G. Smith (May 22): Noticed attacking cattle in the Laurel and Lynden areas on May 14.

HORSE

SOUTHERN BUFFALO GNAT (Eusimulium pecuarum Riley)

Mississippi. C. Lyle (May 25): None seen in the Tallahatchie and Yalobusha River bottoms, where they are usually numerous at this time of the year.

Louisiana. F. C. Bishopp (May 25): Fifteen gnats submitted from horse ridden into a swamp at Mer Rouge for purpose of collecting. Reported as annoying to livestock on April 18 and May 4. (Det. by A. Stone.)

SHEEP

SHEEP BOTFLY (Oestrus ovis L.)

Florida. A. L. Drody (May 20): On May 8 at Panama City sheep were bunching and running with noses to ground, indicating activity of adults.

BLACK BLOW FLY (Phormia regina Meig.)

Alabama. J. M. Robinson (May 8): Specimen sent from Selma, taken from recently dehorned calf. (Det. by E. F. Knipling.)

Texas. E. W. Laake (May 23): Floeceworm infestation near Dallas, 78 specimens being taken from 1 sheep. After these specimens were taken, the infested herd was shorn and no further infestations have been reported.

R. Melvin (May 13): Cases still somewhat numerous at Menard, but indications are that Cochliomyia macellaria F. are replacing P. regina.

PIGEON FLY (Pseudolynchia canariensis Macq.)

California. M. Ojeda (May 7): Found on domestic pigeon at Los Angeles on October 29, 1939. (Det. by A. Stone.)

DEPLUMING MITE (Onchidocoptes gallinae Raill.)

Nebraska. M. H. Swenk (May 17): Information requested from Hamilton County for control of this mite.

HOUSEHOLD AND STORED-PRODUCTS INSECTS

TERMITES (Isoptera)

Vermont. H. L. Bailey (May 23): Collected in basement where swarm had occurred about April 15 in Brattleboro, Windham County. Report of similar occurrence several years ago. No damage noticed.

Rhode Island. A. E. Stone (May 29): Great number of complaints received.

Maryland. E. N. Cory (May 27): Heavy infestation in houses generally.

Tennessee. G. M. Bentley (May 20): Several swarms of Reticulitermes flavipes Koll. reported in different parts of the State.

Michigan. R. Hutson (May 21): R. flavipes reported in Albion, Fennville, Grand Haven, Kalamazoo, and Niles.

Iowa. C. J. Drake (May 21): Damage reported in DeWitt, Sioux City, Davenport, Des Moines, Cedar Rapids, and Sanborn.

Missouri. L. Haseman (May 21): During May a few additional complaints, particularly reports of swarming, received from different parts of the State.

Nebraska. M. H. Swenk (May 17): Infestation in building of R. tibialis Banks reported from Madison County on May 3.

Oklahoma. C. F. Stiles (May 22): Infestation in stone building in Kay County on May 1. Winged adults found emerging from beneath picture molding in room. Reported as damaging homes in Stillwater, Payne County.

Texas. R. K. Fletcher (May 7): Request for control in house in Caldwell County.

ANTS (Formicidae)

Massachusetts. W. B. Becker (April 14): Specimens of Tetranorium caespitum I received from Dorchester. (Det. by M. R. Smith.)

M. M. Cole (May 7): T. caespitum taken from nest in building at Vineyard Haven. (Det. by M. R. Smith.)

- Rhode Island. A. E. Stene (May 29): Ants of various species seen unusually abundant. Bundle of shingles at Little Compton discovered to be full of carpenter ants which badly damaged many shingles.
- New York. N. Y. State Coll. Agr. News Letter (May 27): Cauliflower plants, one-third matured, attacked by small black ants. They destroyed approximately 100 plants or less than 0.5 percent of the total number.
- Maryland. E. N. Cory (May 27): Ants reported generally in houses.
- Virginia. F. R. Freund (May 6): T. caespitum brought to office approximately a dozen times this spring. (Det. by M. R. Smith.)
- Florida. H. Spencer (May 1): A little fire ant, Wasmannia auropunctata Roger, is coming out of the ground in citrus groves on the east coast and feeding on honeydew from insects on leaves. The smaller trails up trees indicate reduction in numbers of workers during the unusually cold winter.
- Mississippi. C. Lyle (May 25): Camponotus caryae rosilis Whlbr. reported as infesting house in Jones County.
- Ohio. E. W. Mendenhall (May 21): Black pavement ants, T. caespitum, are damaging garden plants and are annoying near a house at Columbus.
- Wisconsin. E. L. Chambers (June 1): Several infestations reported in houses in vicinity of Madison. Specimens submitted were apparently Lasius interjectus Mayr.
- Missouri. L. Hasenan (May 21): Since middle of May the common small red household ant has been attracting attention in central Missouri, and many inquiries received since May 1 of large red ants with nests around rocks and foundations of buildings.
- Nebraska. M. H. Swenk (May 17): Numerous complaints of injury, both indoors and out, chiefly in strawberry beds, received from April 15 to May 15 from Douglas, Holt, Lancaster, and Morrill Counties.
- Oklahoma. C. F. Stiles (May 22): Reported as seriously damaging rhubarb in Garfield County.
- Texas. R. K. Fletcher (May 17): Requests for control from Rusk County on May 1, and from Fannin County on May 13. Farm infested with countless nests of the red harvester ant (Pogonomyrmex barbatus F. Smith) on May 6 in Collin County.
- Mrs. J. W. McCollough (May 15): Leptogenys elongata Duckl. found preying on sowbugs at Dallas. (Det. by M. R. Smith.)
- Utah. G. F. Knowlton (May 10): Damaging seedling tomatoes in a coldframe at Logan. (May 15): Black ants damaging a lawn at Logan. (May 25): Annoying around a honey house and in bee yards at Nephi.

BEES AND WASPS (Hymenoptera)

General. E. A. Back (May 25): Polistes spp. troublesome in houses while emerging from hibernation in the following States: New York, New Jersey, Pennsylvania, Ohio, Michigan, and Illinois.

Massachusetts. A. I. Bourne (May 24): Numerous inquiries received relative to large numbers of and annoyance caused by wasps, mostly Polistes sp., which occurred in houses. Number of complaints greatly exceeds writer's experience.

Pennsylvania. E. A. Back (May 14): Specimens of a carpenter bee, Xylocopa virginica Drury, from Clark's Summit.

Maryland. E. A. Back (May 25): X. virginica received from two localities in Md.

COCKROACHES (Blattidae)

General. E. A. Back (May 25): Blattella germanica L. received during May from Maine, Massachusetts, Pennsylvania, Maryland, District of Columbia, Virginia, Illinois, and California. Oriental cockroach (Blatta orientalis L.) received during May from New Jersey, Illinois, Missouri, and Nevada. American cockroach (Periplaneta americana L.) received on May 20 from New York City and on May 11 from Detroit, Mich.

Ohio. E. W. Mendenhall (May 22): B. germanica very bad in many places where sacked potatoes have been sold, affording a means of distribution to houses.

Mississippi. C. Lyle (May 25): Annoyance reported from Hinds and Tippah Counties. American and German roaches very numerous and annoying along the coast. Several complaints of B. germanica reported from Grenada and Yal-busha Counties.

Nebraska. M. H. Swenk (May 17): Complaint from Nemaha County on April 22 of house infested with B. germanica. B. orientalis troublesome in Douglas and Dodge Counties on April 18 and May 7, respectively.

Utah. G. F. Knowlton (May 1): B. germanica annoying at Logan and Ogden.

HOUSE CRICKET (Gryllus domesticus L.)

Pennsylvania. E. A. Back (May 25): Specimens collected from Upper Darby on April 19. Reported as destructive to fabrics in house.

BOXELDER BUG (Leptocoris trivittatus Say)

Michigan. R. Hutson (May 21): Reported in the southern part of the State.

Wisconsin. E. A. Back (May 25): Specimens received from house in Wauwatosa on May 9.

E. L. Chambers (June 1): Unusually abundant in Clark, Outagamie, Portage, Winnebago, and Wood Counties.

Iowa. C. J. Drake (May 21): Reported in considerable numbers from over the State.

North Dakota. J. A. Munro (May 23): Moderately abundant at Fargo.

Nebraska. M. H. Swenk (May 17): Proving troublesome in Richardson County, according to reports received on April 24 and 26.

Washington. L. G. Smith (May 8): Specimens sent in from Bellingham on January 22.

CLOVER MITE (Bryobia praetiosa Koch)

General. E. A. Back (May 25): Specimens received during first half of May from Massachusetts, Pennsylvania, District of Columbia, Virginia, Indiana, and Wyoming.

Pennsylvania. C. H. Gross (May 11): Pests coming in windows of house at York in great numbers. (Det. by H. E. Ewing.)

Illinois. W. P. Flint (May 21): Many reports received of invasions of houses by this pest, which has been more abundant this spring than during previous years.

Michigan. R. Hutson (May 21): Observed entering houses in the southern part of the State.

Minnesota. H. H. Shepard (May 18): During week of May 12 clover mites overran several houses in same block in Saint Paul.

Nebraska. M. H. Swenk (May 6): Complaint from Grant County of mites as annoying on porch.

Montana. H. B. Mills (May 9): Apparently more abundant than usual on broad-leaved herbs and entering dwellings in western part of the State.

POWDER-POST BEETLES (Lyctus spp.)

New York. E. A. Back (May 20): Attacking furniture in New York City.

Maryland. E. N. Cory (April 25): Infesting houses in Clarksville.

Mississippi. C. Lyle (May 25): L. parallelopipedus Melsh. sent in from Jackson County. Door and window casings made of ash lumber were infested and adults were emerging.

Nebraska. M. H. Swenk (May 3): Oak flooring of a house in York County found to be damaged by L. planicollis Lec.

BORERS (Cerambycidae)

Massachusetts. A. I. Bourne (May 24): Larvae of Hylotrupes bajulus L. received from East Weymouth where they were reported as injuring wooden beams in a cellar. (Det. by W. H. Anderson.) (May 24): Larvae of Stenophenus sp. were received from Westhampton and reported to have been taken from white birch lumber. (Det. by W. H. Anderson.)

Pennsylvania. E. J. Udine (May 24): H. bajulus in several pieces of siding of a house at Carlisle. (Det. by F. C. Craighead.) Parasites determined by C. F. W. Muesebeck as Rhoptrocentrus piceus Marshall were found on this species.

Maryland. E. N. Cory (April 2): Xylotrechus colonus F. found at Owings Mills. (Det. by W. H. Anderson.) (May): Anacomis lignea F. was attacking house in Silver Spring and Catonsville on April 24 and May 21, respectively.

Washington. L. G. Smith (April 29): Tetropium velutinum Lec. found attacking load of fir and larch wood in Spokane on January 8.

FLATHEADED BORERS (Buprestidae)

New York. C. W. Collins (May 1): Buprestis salisburyensis Hbst. found in house at Massapequa, Long Island. Hole noticed in door. (Det. by W. S. Fisher)

Washington. M. H. Hatch (April 30): B. aurulenta L. found emerging from flooring of 20-year-old house in Seattle.

SPIDER BEETLES (Ptinidae)

Massachusetts. A. I. Bourne (May 24): Adults of Hadrobregmus carinatus Say found in both hardwood and softwood beams and flooring in house at Amherst. Damage so severe that major replacements and repairs had to be made.

Virginia. E. A. Back (May 25): Mezium americanum Laporte and Gibbium psyllode Czemp. found in numbers from May 15 to 27 crawling in a house at Richmond.

Tennessee. E. A. Back (May 25): For 3 weeks prior to March 30 Ptinus fur L. was abundant in house in Chuckey.

A BOOK WORM (Neogastrallus librinocens Fisher)

Florida. E. A. Back (May 25): Destructive in library at Winter Park.

BEETLES (Anobiidae)

Vermont. H. L. Bailey (May 23): Cow stable at Williston, Chittenden County, northwestern Vermont, heavily infested with the drug-store weevil (Stegobium paniceum L.), probably from grain. Predaceous bug, Lycocoris campestris F., determined by C. F. W. Muesebeck, was also abundant at same location.

Connecticut. N. Turner (May 23): Xestobium rufovillosum Deg. received in number from building in Middletown. Chairs seriously damaged in New Haven by Anobium punctatum Deg.

Virginia. P. K. Harrison and H. N. Pollard (May 15): Spring brood of the cigarette beetle (Lasioderma serricorne F.) began to emerge from stored tobacco at Richmond during the week ended May 14.

BEETLES (Dermestidae)

General. E. A. Back (May 25): Larvae of the black carpet beetle (Attagenus piceus Oliv.) received during May from Maine, New York, New Jersey, and Pennsylvania. Adults of the larder beetle (Dermestes lardarius L.) were swarming in large numbers over interior of house at Spring Valley, N. Y., on May 14. Adults of Anthrenus vorax Wtrh. received on May 15 from house in Westchester, N. Y. Adults of varied carpet beetle (A. verbasci L.) received from Haworth, N. J., on May 13. (Det. by H. S. Barber.)

Wisconsin. E. L. Chambers (June 1): Several complaints received of A. piceus. Larvae collected in houses.

Nebraska. M. H. Swenk (May 17): A. piceus reported as found in houses in Douglas County on April 25 and May 1, and in Washington County on May 11. Infestation of A. verbasci found on May 1 in Burt County.

BEAN WEEVIL (Acanthoscelides obtectus Say)

Michigan. E. A. Back (May 25): Found overrunning house on May 6 in Gladstone.

FLOUR BEETLES (Tenebrionidae)

Virginia. E. A. Back (May 25): Larvae of the yellow mealworm (Tenebrio molitor L.) were abundant, but only 3 adults seen on April 15 at Sunset Hills. Adults were very common and larvae rare on May 23. Larvae and adults of T. obscurus F. were overrunning house from May 15 to 22 in Linconia. House remodeled last winter from dairy barn.

Iowa. C. J. Drake (May 21): A black flour beetle Tribolium nadens Charp., taken in samples of small grain at Orange City. Also found at Webster City, Fort Dodge, and in other parts of State.

Washington. M. H. Hatch (May 1): Gnathocerus cornutus F. taken in a flour mill at Seattle. First record as a pest for the State.

BEETLES (Coleoptera)

Connecticut. E. A. Back (May 25): Specimens of fungus beetle, Typhea stercorea L., received with statement that they were in living quarters in a barn. (Det. by W. S. Fisher.)

Michigan. R. Hutson (May 21): Corticaria serrata Payk. received from Detroit where it was found feeding in damp area where eaves trough was plugged.

Wisconsin. E. L. Chambers (June 1): Oryzaophilus surinamensis L. reported as identified from several locations as a pest in stored foods.

Utah. G. F. Knowlton (April 22): Sweet corn infested by Sitophilus granarius. Several sacks of seed corn at Roosevelt infested and injured 20 percent. (Det. by L. L. Duchanan.)

SNOUT MOTHS (Pyralididae)

General. E. A. Dack (May 25): Adults of the Indian-meal moth (Plodia interpunctella Hbn.) collected in Pennsylvania, Ohio, and Illinois during the first part of May.

Maryland. E. N. Cory (April 30): P. interpunctella in pantry at Cumberland.

Texas. E. A. Dack (May 21): Ephestia cautella Walk. from house at Lubbock isolated with cottonseed hulls. (Det. by C. Heinrich.)

ANGOUMOIS GRAIN MOTH (Sitotroga cerealella Oliv.)

Missouri. L. Haseman (May 21): Apparently almost destroyed by winter cold in grain in unheated cribs and bins, as samples of grain have shown no infestation, although taken from cribs that were badly infested last fall.

CLOTHES MOTHS (Tineidae)

Virginia. E. A. Dack (May 24): Tineola biselliella Hum. was developing in numbers in hair shed by cat beneath house in Richmond.

Wisconsin. E. L. Chambers (June 1): Many requests for identification and control of T. biselliella and Tinea pollionella L.

Oregon. E. A. Dack (May 18): T. biselliella was infesting a bag of feathers in closet in house in Portland.

A NOCTUID (Epizeuxis aemula Hbn.)

Pennsylvania. E. P. Felt (May 23): Larvae, known to feed on dry fallen leaves and leaf refuse, appeared in numbers in a house in Philadelphia.

SPRINGTAILS (Collembola)

Pennsylvania. E. A. Dack (May 14): Troublesome in house at Philadelphia.

HOUSE CENTIPEDE (Scutigera forceps Raf.)

Illinois. E. A. Dack (May 25): Specimens received from Cicero on May 8.

SPECIAL NOTE

Kansas. R. C. Smith (May 7): Melitara dentata Grote was reared from larvae which bored through leaves of cactus plants and reduced numbers of these plants in pastures. Larvae more numerous last year than within memory of anyone here, and active again this spring. (Det. by C. Heinrich.)

COLONIZATION OF JAPANESE BEETLE PARASITES IN 1939

By J. L. King, senior entomologist, and
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During the active season of 1939 the parasite-colonization work at the Japanese beetle laboratory at Moorestown, N.J., was confined entirely to the placement of new colonies of Tiphia species largely within the boundaries of generally infested States.

New importations of Tiphia popilliavora (Korean strain) were also made for rearing purposes, as the older rearing stock had diminished in vitality to such an extent that no colonization of this later strain was accomplished in 1939.

The Spring Tiphia, Tiphia vernalis Roh.

Colonization in Maryland.--The beetle-infested area in Maryland was visited by representatives of the Bureau of Entomology and Plant Quarantine, in company with members of the cooperating group of the University of Maryland in order to select new areas for parasite colonization. A number of areas were selected and surveyed as to host population and on May 17 the work of colonization was started. The liberation of 40 new colonies was made in 11 counties in Maryland in 1939, which brings the total colonies of T. vernalis to 375 in this State. The releasements in 1939, in addition to 3 made in the city of Baltimore, were made in the following counties: Cecil, 5; Frederick, 5; Baltimore, 2; Kent, 5; Harford, 7; Worcester, 3; Howard, 2; Prince Georges, 3; Anne Arundel, 2; Queen Annes, 2; and Talbot, 1.

Colonization in New York State.--Westchester County, which is heavily infested by the Japanese beetle, was surveyed by a representative of the New York Agricultural Experiment Station at Geneva, N.Y., working cooperatively with Bureau representatives. The habitats selected seem ideal and should yield most favorable results in the future. There were 50 releasements made in New York in 1939, which brings the total releasements of this species to 62 in that State. The 1939 colonies were released in the following counties: Westchester, 44; Rockland, 2; Tioga, 2; Chemung, 1; and Monroe, 1.

The writers acknowledge the assistance of their associates, J. W. Balock and J. J. Willard, who were actively engaged in the many phases of work associated with the rearing, collecting, and distribution of parasites.

Colonization in Connecticut.---Cooperative work with the Connecticut Agricultural Experiment Station at New Haven continued as in the past. A total of 25 colonies were released in 1939, thus bringing the final number of colonies of T. vernalis to 49. The 1939 releasements were made in the following counties: Fairfield, 12; New Haven, 8; Hartford, 4; and New London, 1.

Colonization in New Jersey.---Heavy beetle infestations still prevail in sections of northern New Jersey. It is planned to colonize these as time and material permit. Ten colonies were released in this area in 1939, which brings the total colonies in New Jersey to 299. The 1939 releasements of T. vernalis were made in the following counties: Hunterdon, 7; Somerset, 2; and Morris, 1.

Colonization in Pennsylvania.---The western spread of the beetle in Pennsylvania has advanced rapidly in the last few years, but it has been impossible to keep pace with this and meet all requests for parasite colonies. In 1939, however, the heavily infested Chester County received 10 colonies, which brings the total of this species to 427 in Pennsylvania.

Colonization in Delaware.---Although the northern part of Delaware is heavily infested, the habitats are not ideal for T. vernalis; however, 10 colonies were liberated in the State with the hope of bettering parasite distribution in that area and to supplement the adjacent heavily colonized areas in Maryland. Delaware has now a total of 52 colonies of T. vernalis. The 1939 liberations were made with 6 colonies in New Castle County and 4 in Kent County.

The accompanying map shows in general the total distribution of the 1,272 colonies of T. vernalis.

Parasitization of beetle larvae by *Tiphia vernalis*.---Surveys were conducted during the springs of 1935, 1936, and 1939 to determine the effectiveness of T. vernalis as a parasite of the grubs of the Japanese beetle. A pasture at Rushland, Pa., was selected for this purpose and in each survey 2 percent of a designated 10,000-square-foot area was dug to determine the status of the species. This entailed the digging of 200 holes 1 foot square over the entire plot, each hole being dug to a depth of 6 inches and its entire content noted. The following table gives the chief finding for the periods observed.

Year of survey	Total grub population		Average grubs per square foot		Unparasitized grubs		Parasitized grubs	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
1935	1,146	---	5.73	---	444	38.74	702	61.25
1936	816	---	4.90	---	429	52.57	388	47.55
1939	1,054	---	5.27	---	548	51.99	506	48.00

The Summer Tiphia, Tiphia popilliavora Roh.

Owing to the late-season occurrence of third-stage host grubs in 1938, the abundance of female T. popilliavora parasites was much reduced in 1939 and colonization was, therefore, necessarily limited. During the somewhat delayed collecting period, 3,300 females were taken and were distributed in 33 colonies.

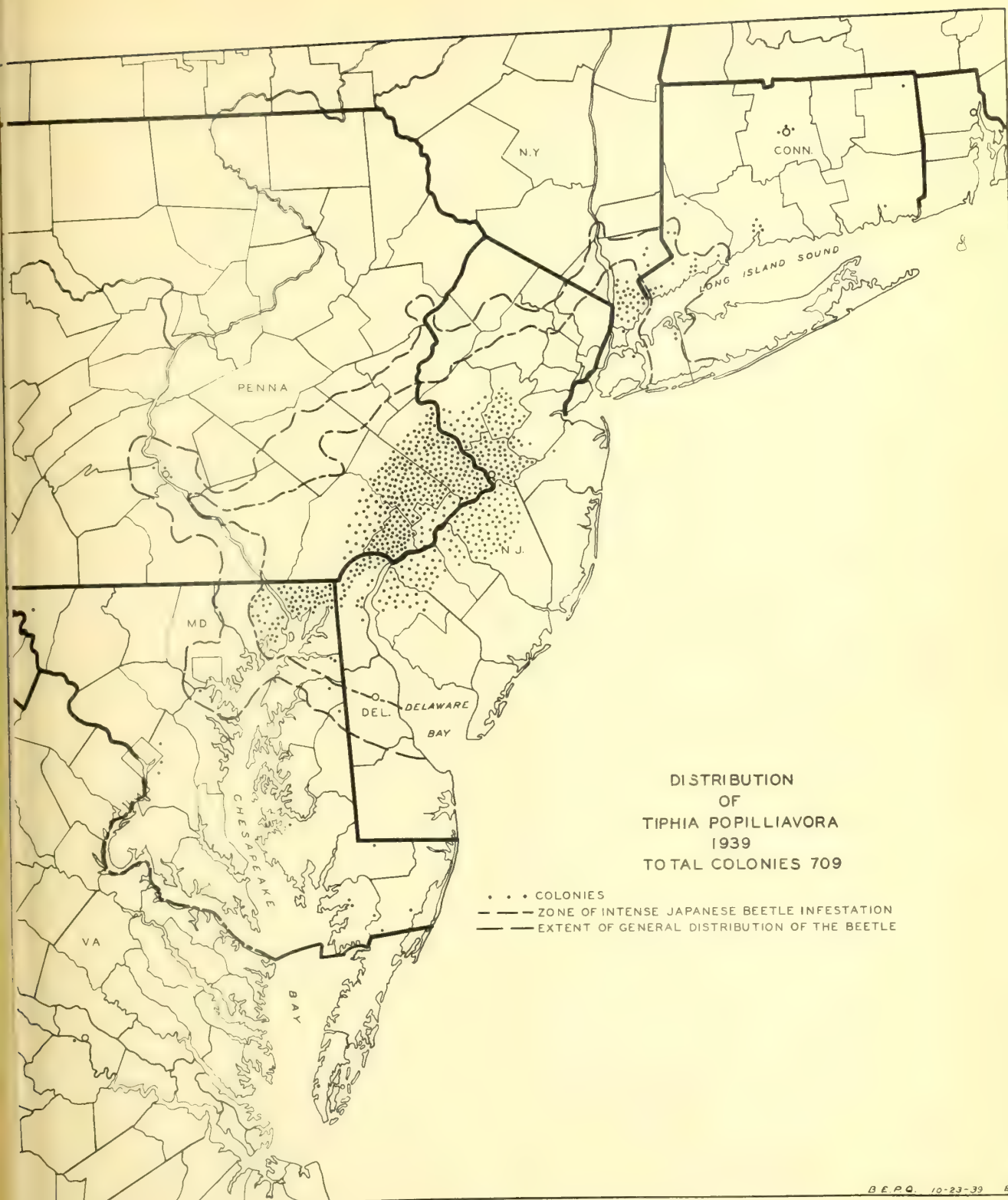
Colonization in Maryland.--Continuing cooperation with the State enabled the Bureau workers to place 10 more colonies of this species in Maryland in 1939, thus raising the total colonies of this species in this State to 85. The 1939 liberations were made in the following counties: Somerset, 2; Worcester, 1; Queen Annes, 1; Caroline, 1; Wicomico, 1; Prince Georges, 3; and Anne Arundel, 1.

Colonization in New York.--The colonization of T. popilliavora in New York State continued on a cooperative basis with the State's representatives. In that State 19 colonies of this species were placed in 1939, thus bringing the total to 34 colonies. The 1939 releasements were as follows: Westchester County, 18; and New York County, 1.

Colonization in Virginia.--At the request of the State entomologist, three colonies of T. popilliavora were released in the infested areas of Virginia, one in each of the following counties: Chesterfield, Norfolk, and Northampton.

Colonization in New Jersey.-- One releasement was made in Middlesex County in 1939.

The accompanying map shows in general the total distribution of the 709 colonies of T. popilliavora.



THE MORE IMPORTANT RECORDS FOR JUNE

The grasshopper situation still remains severe over a large part of the West. Practically all Melanoplus mexicanus Sauss. had reached the adult stage during the first week in June in the Imperial Valley of California and Arizona, and were starting to transform to adult in New Mexico and Colorado. In the northern Panhandle of Texas, southern Oklahoma, and Kansas about three-fourths of M. mexicanus were in the mature stage during the second week of the month. During the first week of the month hatching was practically completed in Nebraska, Iowa, Montana, Wyoming, and Utah. By the third week in the month hatching was practically completed in North Dakota, Minnesota, and Michigan.

Up to the third week in June the large bands of Mormon crickets in Big Horn and Yellowstone Counties, Mont., were still at high elevations and are not likely to migrate into crop areas, as the vegetation is abundant. The crickets are now largely in the adult stage. In Utah and Idaho, although there was some migration crops were adequately protected by control measures. The infestation in South Dakota is quite heavy in limited areas and some crop damage is being reported from Nevada.

Associated with the very delayed spring, severe cutworm injury to a wide variety of truck crops was reported from the North Central and East Central States and in parts of California.

Heavy flights of moths of the beet webworm were observed in North Dakota and Utah and severe damage was being done by the larvae in parts of Washington State. Heavy defoliation of hardwood trees by May beetles was reported from the Middle Atlantic and East Central States.

General reports of damage by the rose chafer were reported from the New England, Middle Atlantic, and East Central States.

During the third week in the month Japanese beetle started emergence in Delaware, District of Columbia, and Virginia.

Serious crop damage by wireworms is reported from New England, Middle Atlantic, East Central, and North Central States, and from Idaho.

No serious damage is expected from chinch bug in Ohio. Owing to rank, thick growth of wheat, the overwintered adults migrated to corn to a greater extent than usual. Weather conditions unfavorable to chinch bug development very much reduced the small-grain infestations in Indiana and Illinois. Rather severe infestations are reported from Iowa, Nebraska, Kansas, Missouri, and Oklahoma.

European corn borer moths appeared considerably later than usual in New England and New York. This insect appears to be more abundant than usual on the Eastern Shore of Virginia.

Rather serious damage to corn by the larvae of the grape colaspis was reported from Indiana and Illinois.

Sitona cylindricollis Fah. was reported for the first time from the State of Illinois, where it was attacking sweetclover. S. lineata L. was reported from the United States for the first time. It was discovered attacking peas in Washington.

Owing to heavy injury by the alfalfa weevil, alfalfa was cut early in many parts of Utah.

In Idaho the clover root borer so seriously damaged clover fields that large numbers were plowed out and replanted to other crops.

In Ohio, Indiana, and Missouri peak flights of codling moth occurred late in May, and during the first week in June large numbers of larvae were entering fruit. During the first 2 weeks in June moths appeared in peak numbers in eastern New York. In the second week in June they were seen in the western part of New York. Peak flight in Delaware occurred during the third week in June.

Throughout June oriental fruit moth was generally prevalent from Delaware to Florida and Mississippi.

Plum curculio was occasioning serious damage in Connecticut and eastern New York during the latter part of the month. Larvae were pupating in Virginia on June 24. The peak of emergence from dropped fruit in the Fort Valley section of Georgia occurred on May 21, this being over 3 weeks later than last year. The infestation in the Georgia peach belt, however, was considerably lighter than usual. In the East Central States this insect was very abundant.

The fall webworm appeared about 3 weeks later than usual in Georgia. This insect was moderately abundant on pecan in Florida and one of the heaviest earlier infestations in many years occurred on pecan in Mississippi. Pecan phylloxera is also seriously damaging pecan trees in Mississippi.

California red scale is more generally prevalent in the citrus areas of California than it was last year. Black scale is severely affecting citrus in some areas.

Citrus thrips is increasing generally in southern California and considerable scarring of the new crop of oranges has been observed.

Very general damage to a wide variety of crops by blister beetles was reported from Georgia, extending around the Gulf region to Texas and Arizona, and also from North Dakota and Minnesota.

Seed corn maggot, as a result of the delayed spring, was causing severe injury from southern New England westward to Michigan and also in the Vancouver area of Washington.

Mexican bean beetle was becoming abundant in New England and New York during the second week in the month.

The bean leaf beetle was abnormally abundant from Maryland to Indiana, and southward to the Gulf.

Many reports of the damage by cabbage aphid on areas in the East Central States that were planted with southern plants.

The boll weevil was below normal in abundance throughout the Cotton Belt except in eastern Texas.

Toward the last of the month the cotton flea hopper started to increase in numbers from Mississippi to Texas.

Early in the month cotton leaf aphids were reported as very numerous throughout the Cotton Belt, except in Texas.

Full-grown larvae of the cotton leaf worm were found on June 22 in Gilchrist County, Fla.

Cankerworms were generally prevalent, often completely defoliating trees, from Pennsylvania westward through the East Central States to North Dakota, South Dakota, and Nebraska.

The European pine shoot moth was reported as seriously damaging pines in Connecticut, New York, and Michigan.

THE MORE IMPORTANT ENTOMOLOGICAL FEATURES IN CANADA FOR MAY AND JUNE 1940

Hatching of grasshopper nymphs was becoming general by the end of May in many areas in the southern part of the Prairie Provinces. The infestation was reported particularly severe in southwestern Saskatchewan and southeastern Alberta. In the latter area grasshoppers as numerous as 800 per square foot had destroyed most of the stubble crops by mid-June, in spite of an intensive poisoning campaign. Damage was continuing at the end of June. In western Manitoba cool weather and good growing conditions had retarded crop injury throughout the month, but poisoned-bait mixing stations were in operation at various points and it was feared that considerable damage may occur later, if the weather turns hot and dry.

As during the last 2 years, cutworms continued to be scarce in the Ottawa Valley. In the West local damage in gardens was caused by the red-backed cutworm and its allies at Brandon, Manitoba, and Saskatoon, Saskatchewan. This species caused some losses to sugar beets in irrigated areas of Alberta. The pale western cutworm caused severe damage in some fields at Bow Island, Alberta.

Wireworms caused some damage in southern and southwestern Manitoba, and thinned crops generally throughout much of Saskatchewan and Alberta. In south-central Saskatchewan surveys showed from 8 to 40 percent damage to wheat seeded

on summer-fallow, and general damage was observed in northwest and west-central districts; 10 percent damage occurred from Redvers to Regina to Saskatoon, and between Parkside and Prince Albert, with very little in the northeast. In the Three Hills, Drumheller, and Rosebud districts of Alberta, seed damage by wire worms resulted in from 5 to 40 percent thinning of wheat in certain fields. Severe infestation occurred throughout the whole Peace River area of Alberta, losses ranging from 1 to 50 percent.

Several thousands of square miles in central Ontario, in the Peterborough Perth zone, are extremely heavily infested by third-year white grubs. These grubs caused tremendous damage in 1939, but injury in 1940 will be largely of secondary nature. An extensive major flight of June beetles will occur in 1941 throughout this region.

Wheat, particularly winter wheat, in many counties in eastern and central Ontario is infested by the eastern wheat stem sawfly (Cephus pygmaeus L.). In the Nobleford district of Alberta there is a severe infestation of the wheat stem sawfly (C. cinctus Nort.). The sawflies were emerging in numbers on June 18. A heavy outbreak is expected over large areas in Alberta.

In southern Alberta and Saskatchewan adults of Say's stinkbug had emerged from hibernation and had resumed full activity by April 30. Overwintering mortality was about 37 percent. The species increased rapidly in numbers with the advent of hot weather in June.

Adults of the Colorado potato beetle were flying at St. Jean, Quebec, during the second half of May. In the Ottawa district the first eggs were observed on June 7. Adult beetles were seen in gardens at Saskatoon, Saskatchewan on May 17.

The potato flea beetle and the striped flea beetle were becoming abundant on host crops in the Ottawa district by mid-June. Flea beetles were reported to be a serious pest in gardens in the Brandon area of Manitoba early in June.

The sweetclover weevil (Sitona cylindricollis F.) is prevalent throughout Manitoba and central and eastern Ontario. From 5 to 10 percent of the leaf area had been destroyed in infested districts of Ontario by the early part of June, and damage was increasing. Crop injury in Manitoba had reached economic proportions in some areas by mid-June. In districts where abundant rainfall had occurred, however, the plants had been able to outgrow the injury without loss.

The striped pea weevil (Sitona lineata L.) caused local severe damage in the Victoria district, British Columbia. It was first recorded in North America in this region in 1937.

The weevil Brachyrhinus singularis L., discovered in the Victoria district, British Columbia, in 1937, has become a serious pest of garden plants, of which it attacks a great variety.

The onion maggot and the cabbage maggot are serious pests in the Ottawa district of Ontario and Quebec. In some fields the onion maggot has destroyed 50 percent of the seedlings.

The European earwig has increased in numbers in the Vancouver district, British Columbia, probably as a result of the mild winter.

At Vineland Station, in the Niagara district, Ontario, the first codling moth adult emerged from tree bands on May 30, several days later than at any time in the last several years.

The eye-spotted budmoth appears to be the most prevalent insect in apple orchards in the Annapolis Valley, Nova Scotia, this season.

The strawberry weevil has been more injurious in the Niagara district, Ontario, than for many years. Severe damage by this pest in strawberry plantations was also reported in Prince Edward Island.

Specimens of the brown dog tick (Rhipicephalus sanguineus Latr.) were taken from a dog at Espanola in northern Ontario in March. This appears to be a new record for Canada. The animal had visited Washington and New York the previous November.

The Rocky Mountain spotted fever or paralysis tick (Dermacentor andersoni Stiles) is extremely abundant in southern Alberta and has been found at Swift Current, Saskatchewan, the most easterly record in Canada. Several yearling colts infested by the ticks in the latter locality died of tick paralysis, constituting the first authenticated report of the disease in Saskatchewan.

GENERAL FEEDERS

GRASSHOPPERS (Acrididae)

California. S. Lockwood (June 10): Situation in Kern County continues severe. Principal species in the infested part of the county is Melanoplus devastator Scudd., followed in much fewer numbers by the valley grasshopper (Oedaleonotus enigma Scudd.), and in certain cottonfields in the Kern Lake area by M. differentialis Thos. However, the last two are not abundant enough to cause any considerable amount of damage. M. devastator is now causing some damage to crops in the northeastern part of Los Angeles County. M. mexicanus Sauss. is the principal species in the alfalfa fields of the Palo Verde Valley of Riverside County, and in the cropped areas of Imperial County. Control measures have slowed these down to a marked degree. In some parts of the high areas of San Diego County M. devastator has appeared in outbreak numbers for the first time in the reporter's recollection. Heretofore the desert areas of San Diego County on the eastern slope of the coastal range have been damaged by M. mexicanus, but, with this exception, the greatest damage in the hills has been done by the clear-winged grasshopper (Camnula pellucida Scudd.), and on the coastal hills in the northwestern part of the county, O. enigma has also done considerable damage. Depredations by M. devastator are now occurring on the western foothill section in Tulare County and in Mariposa and Tuolumne Counties. C. pellucida has surprisingly occurred in outbreak numbers in certain rather small restricted areas in central Tulare County, in the lower Sonoran life zone. Several species are occurring now in Siskiyou County in numbers sufficient to warrant control measures.

B. M. Gaddis and assistants (June 2-8): In the Imperial Valley of Imperial County 95 percent of the M. mexicanus are now in the adult stage, mating is taking place and, in many areas, egg development is well advanced. Hoppers in the mountainous areas near Laguna and Palomar, in San Diego County, which have been retarded in development by cold weather are now beginning to develop, with first- to third-instar M. devastator the dominant species. Fifth- and sixth-instar O. enigma and M. devastator are dominant on the Viejas Indian Reservation in that county. A new outbreak of small proportions is reported as developing in the region of West Riverside, in Riverside County, and a new and serious outbreak of M. devastator and O. enigma in San Bernardino County has developed in idle land, threatening surrounding vineyards and injuring some 500 acres of melons and grapes.

1/ Arizona. (June 2-8): Infestations in several districts of Maricopa, Graham, and Gila Counties continue to be serious. Threatening or severe infestations are present, the severe areas being spotted and confined in

1/ Where no name is given after the State the report is by B. M. Gaddis and assistants.

or less to alfalfa fields and rangeland. M. differentialis is the dominant species in Maricopa County at present. Most of the M. mexicanus are in the adult stage, and females are gravid. (June 16-22): In orchards on some of the small ranches in Cochise County, adults of the large green brush grasshopper, Schistocerca shoshone Thos., have appeared in fruit trees in large numbers. This grasshopper is doing considerable damage to the fruit and foliage.

New Mexico. (June 2-8): Dissosteira longipennis Thos. adults were first reported in the vicinity of Artesia, in Eddy County, about June 7. (June 16-22): M. bivittatus Say and M. differentialis comprise about 95 percent of all species present in San Miguel County; M. femur-rubrum and M. mexicanus comprise the remaining 5 percent. In Sandoval, San Miguel, Colfax, and Valencia Counties, M. differentialis and M. bivittatus are the dominant species. About 10 percent are adults; nearly all of the M. mexicanus and M. femur-rubrum are now adults. Damage has been rather severe in some alfalfa fields, and migrations into adjoining small-grain fields have taken place. About 50 percent of the D. longipennis in Eddy and Quay Counties are now in the adult stage. Populations are very light in this part of the State.

Colorado. (June 2-8): The known infestations of D. longipennis in Pueblo, Otero, Cheyenne, and Las Animas Counties had been almost 100-percent cleaned by the close of the week. Natural control has been an important factor in reducing populations in these counties, the chief contributing agencies being the adverse weather conditions during the hatch and the activity of birds. The only remaining heavy D. longipennis infestation in Colorado is an area of about eight sections in Lincoln County. In the crop-hopper areas of northeastern Colorado, cool and stormy weather prevailed during the week, retarding development and movement, and preventing crop damage to any great extent. Infestations in Adams, Weld, and Larimer Counties were reported as still confined largely to irrigated alfalfa fields, with M. mexicanus still the dominant species in this area, representing about 40 percent of the populations. The hatch in northeastern Colorado was practically completed except for M. differentialis and M. femur-rubrum; adult M. confusus Scudd. and M. occidentalis Thos. were reported in Weld County during the week. A heavy infestation is present in most of the southeastern part of Baca County, where 25 percent of M. mexicanus are in the adult stage. D. longipennis in Baca County have now reached the sixth instar, with the greater number in the fourth and fifth. Approximately 50 percent of M. mexicanus in Baca County have become adult. A minor flight of these hoppers was observed on June 14, covering an area of approximately 50 square miles, and most of the hoppers were flying higher than 1,000 feet above the ground. In Lincoln and Kit Carson Counties, some of the M. mexicanus have become adult; however, most are in the fifth instar. M. bivittatus and M. packardii Scudd. are next in dominance, with M. packardii matured. Mature M. occidentalis were reported in Park County at about 40 per square yard. Nymphal migrations are occurring daily back and forth in abandoned and idle land, some migrating into crops. (June 16 to 22): A new

infestation of D. longipennis extending over about 6 sections was located in El Paso County near the Lincoln County line. These grasshoppers are about 15 percent fifth instar and occur in numbers ranging from 4 to 25 per square yard.

Nevada. (June 9-15): Ninety percent of M. mexicanus and 80 percent of M. bivittatus in the State are now in the adult stage. A few M. mexicanus and many M. occidentalis were mating in Lyon and Washoe Counties on June 7. General flights of M. mexicanus and M. bivittatus were observed in the Smith Valley area in Lyon County.

Texas. (June 9-15): The infestation in northern Texas Panhandle counties is still heavy, although the total population of M. mexicanus in the migratory area has been reduced considerably. (June 16-22): About 85 to 90 percent of the grasshoppers in the migratory counties of Dallam, Sherman, Hartley, and Moore have reached the adult stage. M. mexicanus is the dominant species. Flights of this species were observed daily during the week in Dallam County. D. longipennis now comprises only a very small percentage of the grasshoppers occurring in Dallam and Hartley Counties.

Oklahoma. C. F. Stiles (June 26): Population throughout the eastern two-thirds of the State is light; believed to be below normal. A few local outbreaks have occurred in McCurtain County. In southwestern Oklahoma a few local outbreaks have occurred in Jefferson, Harmon, Kiowa, Greer, and Roger Mills Counties. Infestation remains very heavy in Cimarron County, where hoppers have been reported as numerous as 125 to 175 per square yard, most of them being M. mexicanus. Infestation decreases coming eastward through Texas and Beaver Counties. Harper County reports some infestation, mostly A. turnbullii. (June 2-8): In Texas and Cimarron Counties from 40 to 50 percent of the M. mexicanus are in the fifth instar, while 60 percent of A. turnbullii and A. elliotti are in the fifth instar. A heavy infestation of A. turnbullii was reported in Beaver County, with an average of 30 hoppers per square yard along field margins. The heaviest infestations in southwestern Oklahoma are reported to occur in Beckham, Kiowa, and Greer Counties. (June 9-15): M. mexicanus is reported to be the dominant species in the western half of Texas County. In the eastern part of the county crop hoppers are most numerous. In both Texas and Cimarron Counties 70 percent of A. turnbullii is reported to be fifth instar. (June 16 to 22): Flights of M. mexicanus were observed daily in Cimarron County. Brachystola magna Gir. is rather numerous over the southwestern part of the State and is scattered throughout the cotton-fields.

Kansas. (June 9-15): Most grasshoppers, mainly A. turnbullii, are now adults in most of the infested counties of the State. In Rush and Thomas Counties M. mexicanus constitute more than half of the hopper infestation. Many of these are adult. Migrations have been observed in Finney County where one band was about $\frac{1}{2}$ mile wide and averaged about 25 hoppers per square yard. Another in the same county was about

3 miles wide and had about 15 hoppers per square yard; still another was observed in Seward County. First copulation of A. turnbullii was observed in Clark County on June 5, and half-developed eggs are now to be found in some females. (June 16 to 22): Most of the M. differentialis are in the third, fourth, and fifth instars.

Nebraska. (June 2-8): Gravid females of A. turnbullii and M. confusus were reported as present in the Republican Valley on June 6. The degree of hatch is as follows: M. confusus, 98 to 100 percent; M. mexicanus, 95 to 98 percent; M. bivittatus, 90 to 98 percent; M. differentialis, 40 to 75 percent; and A. turnbullii, 90 percent. Very little population dispersion has occurred to date, and damage has been confined to weeds along roadsides and field margins. Only a slight amount of small grain and other crop damage has been recorded and amounts to less than 1 percent. The first adults of M. packardii were observed on June 14 in the Republican River Valley east of Benkelman. M. confusus was first observed mating near Websterville, in Custer County, on June 10. (June 16-22): In the northeastern part of the State, M. bivittatus is the dominant species with M. differentialis being almost as numerous. The hatch of both these species is complete except in the eastern Missouri River Counties where a few M. differentialis remain to hatch. Approximately 2 percent of the M. bivittatus are now adult. In western Nebraska, M. packardii in the fourth instar is the dominant species. M. bivittatus and M. mexicanus are principally in the third and fourth instars with a few of the latter being adult. M. confusus is adult in all portions of the State. Little movement into fields has been noted and crop damage has not been extensive in any area.

Missouri. (June 16 to 22): Only a few first and second instar nymphs of M. bivittatus, M. mexicanus, and M. differentialis have been reported in the State. Populations approaching 50 per square yard have been observed on field borders. Injury has been limited to barley, garden crops, and red clover.

Iowa. (June 2-8): Heavy rains during the last week in the western part of the State are reported to have reduced populations slightly in a few areas. In the northwestern border counties the hatch of M. bivittatus is about 70-percent complete, and marginal populations average from 100 to 150 per square yard. Sioux and Plymouth Counties are the most seriously infested. (June 9-15): M. bivittatus and M. mexicanus have nearly completed hatching in the northwestern part of the State. The early instars of M. differentialis have been noticed in much of this area. There has been a rapid increase in populations, owing to warm weather.

Wyoming. (June 2-8): Hatching of M. mexicanus, M. bivittatus, and M. packardii is reported to be practically complete in Goshen, Platte, and Laramie Counties. No heavy infestations are reported in the above counties, while in Crook, Weston, and Campbell Counties, the infestations are reported to be even lighter. Hatching of M. differentialis and M. femur-rubrum is expected to be completed within the next week. M. confusus adults are reported. (June 9-15): Hot weather during the week has been responsible

for the completion of hatching, with the possible exception of M. femurubrum. Adult M. confusus are common and a few adult M. bivittatus have been observed. About 50 percent of the M. bivittatus and M. packardii are in the fourth and fifth instars. In the irrigated areas these two species predominate, only a few M. mexicanus having been observed. Infestations on range and idle land in Goshen and Campbell Counties were found to be composed of a mixture of different species with practically no M. mexicanus present. The severest general infestation is in Sheridan County, where grasshoppers are present in numbers sufficient to do damage in practically all parts of the county.

Utah. (June 2-8): Hatching was about 80 percent complete in most of the infested areas of the State, but at some of the higher elevations the hatch is just beginning. The dominant species, M. mexicanus, is predominantly in the first and second instars; however, there is a very wide range of development in the various areas of the State. Fifty percent of M. differentialis and M. bivittatus are in the third instar. Harvesting operations and rapid drying of idle and weedy areas are causing a general movement into field margins, and severe marginal damage is now occurring in some alfalfa fields. Weather conditions during the last few weeks have been favorable for rapid development. In infested localities, populations average approximately 20 per square yard in fields and 100 per square yard along field margins.

G. F. Knowlton and F. C. Harmston (May 31): Heavy infestation of warrior grasshoppers (C. pellucida) is developing in the Hayden area of the Uintah Basin.

Montana. (June 2-8): Hatch of M. mexicanus in north-central Montana is complete in many areas, with first to third instars reported in Fergus and Chouteau Counties. Adult M. confusus appeared during the week in Fergus County. Some minor migrations took place during the week, but cool weather has prevented any heavy movement. (June 9-15): M. mexicanus constitutes about 98 percent of the infestation in Hill County. A few M. bivittatus and miscellaneous range species have been noted. In Tool, Chouteau, Judith Basin, and in parts of Cascade, Teton, Liberty, and Hill Counties the hatch is completed. (June 16 to 22): Adult M. mexicanus have been observed in Fergus, Cascade, Chouteau, Pondera, and Hill Counties and 75 percent are recorded as being in the fifth instar. The northeastern counties of Dawson, McCone, Richland, Roosevelt, Sheridan, and Daniels have very light infestations, the heaviest being in Richland where 15 grasshoppers to the square yard were found. It is reported that the hatch is complete in this latter section. In Liberty County, about 50 percent of the M. mexicanus are now in the fourth instar.

South Dakota. (June 2-8): M. differentialis reported to be hatching rapidly in the eastern part of the State. The hatch of M. bivittatus and M. mexicanus in the same section of the State was reported to be almost complete. In the Black Hills area, in the western part of the State, infestations remain spotted, M. mexicanus representing about 85 percent of the total populations. The hatch is practically completed in this area. M. confusus adults are common and M. differentialis is in the

first and second instars. No movements of any significance are reported, and crop damage to date has been very light. (June 9-15): In the counties south of Huron, namely, Sanborn, Aurora, Charles Mix, Gregory, and the Rosebud area, there are extremely heavy infestations along the margins and roadsides. North of Huron, populations range from 25 to several hundred per square yard on the margins and from 5 to 100 per square yard in the fields; however, the infestations are spotted in these northern areas. In most instances the infestations are composed largely of M. mexicanus and M. confusus. These species are in the second to fourth instars, and a few are adults. In Spink County from 22 to 60 percent of the total hoppers were adults. (June 16-22): In the south central counties of the State, M. bivittatus is the dominant species followed by M. differentialis, M. mexicanus, and M. confusus. M. bivittatus, M. mexicanus, and M. confusus are in the fifth instar and adult stages, with all of the latter species being adult. No heavy infestations are reported but many are threatening. M. mexicanus occurs in small, scattered, threatening infestations in the western part of the State. M. bivittatus is also the dominant species in the eastern part except that in Clay and Union Counties, M. differentialis is more numerous. M. mexicanus is third in numbers in this area. Infestations are not severe. M. mexicanus and M. bivittatus ranging from the first instar to the adult stage are the important species in the northeastern part of the State. Hatching is nearly complete and infestations are not at present severe. The same species, M. bivittatus, M. mexicanus, M. differentialis, and M. confusus, with the addition of M. packardii are the important species in the central part of the State, and in a few of the southern counties. Some M. mexicanus and M. bivittatus are now adult as are all of the M. confusus. It is reported that a severe infestation is located in Sully County. In the north, M. mexicanus are about 90 percent adult, M. differentialis 60 percent second instar, and M. bivittatus 50 percent fourth instar and 2 percent adult. B. magna constitutes 10 percent of the infestation in Corson County. The infestation is spotted, with severe spots being found in several counties. Considerable movement of the M. mexicanus has been noted on hot days.

North Dakota. F. G. Butcher (June 25): Beginning to cause marginal crop damage and much alarm throughout much of the northeastern quarter of the State. M. mexicanus is the predominant species, with M. bivittatus, M. packardii, M. differentialis, and C. pellucida as other important species. Hatching not complete but ranges from 90 to 100 percent in the southern half of the State and from 60 to 80 percent in the northern half. (June 16 to 22): Serious infestations have developed in Pembina, Walsh, Ramsay, and Nelson Counties. The hatching is about 90 percent complete in the southern portion of this area and about 75 percent complete in the central and northern parts. Eggs yet to hatch are those of M. differentialis, Melanoplus angustipennis Dodge, M. femur-rubrum, and D. carolina L. M. mexicanus and M. bivittatus are in the fourth instar. About 50 percent of the M. confusus are adult in the Sheldon area. In the remainder of the State M. mexicanus, M. bivittatus, and M. packardii, ranging from the first to the fifth instars, are the important species. Infestations are somewhat spotted in most areas.

Minnesota. (June 9-15): The hatch of M. mexicanus, M. bivittatus, and M. femur-rubrum is reported to be from 50- to 90-percent completed for the first two species, and about 5-percent completed for M. femur-rubrum. The hatch of C. pellucida is reported to be about 50-percent completed. In most counties M. femur-rubrum is the dominant species. (June 16-22) M. mexicanus and M. bivittatus have nearly completed hatching in Kittson County. The latter species comprises about 70 percent of the infestation and the majority of specimens are now in the fourth instar with the last instar of M. bivittatus becoming common. In Polk County, M. bivittatus, M. mexicanus, M. femur-rubrum, C. pellucida, and Melanoplus packardii are the dominant species. C. pellucida are found in the second and third instar while the remaining species are mostly in the third and fourth. In the eastern four-fifths of this county, the hatch is about 60 percent complete. About 70 percent of the grasshoppers present in Marshall County are M. bivittatus; M. mexicanus comprises about 20 percent of the infestation. The hatch is 90 to 95 percent complete. The majority of the nymphs are in the third and fourth instars with the last instar of M. bivittatus becoming quite common. Throughout the remaining areas in the infested counties in Minnesota, the hatch varies from 20 to 80 or 90 percent complete. In most of these areas first and second instar M. differentialis comprises the vast majority of the grasshoppers present.

Wisconsin. (June 9-15): Populations of M. bivittatus ranged from 15 to 35 square yard in the infested counties in the State and are in the first, second, and third instars. (June 16-22): No general hatch has occurred as yet in the State. Most of the hoppers present are in a sandy area south of Wausau in Marathon County. Grasshoppers were found here to run as high as 60 to the square yard. M. bivittatus and M. femur-rubrum are the only two species reported. Only about half of the grasshoppers have hatched.

Michigan. R. Hutson (June 22): M. mexicanus was about 85- to 90-percent hatched in Isabella, Clare, Iosco, Alcona, Alpena, Montmorency, and Oscoda Counties this week. From 10 to 15 percent were in the first instar, from 50 to 75 percent in second instar, and about 10 to 20 percent were in the third instar. C. pellucida was found to be practically 100-percent hatched wherever found, being mostly in the first and second instars. All other species were in about the same range of hatching development. Small numbers of Ageneotettix deorum Scudd. occurred on some sites. (June 16-22): M. mexicanus constitutes about 65 to 85 percent of the grasshopper populations in the infested counties. A. deorum is present in all counties except Iosco, Alcona, and Alpena. In the latter county, only M. mexicanus is reported. In Iosco and Alcona Counties, C. pellucida is to be found.

Illinois. W. P. Flint (June 19): Relatively scarce. No damage reported from any section of the State.

MORMON CRICKET (Anabrus simplex Hald.)

General. C. Wakeland (June 18): No infestations have developed in the Big Horn National Forest of Sheridan County, Wyo., from very heavy depositions of eggs in higher elevations, and it appears that there will be few crickets migrating from there to crop areas. The large bands of crickets in Big Horn and Yellowstone Counties, Mont., are in higher elevations remote from crop areas, where succulent vegetation is so abundant that little injury is apparent, and no extensive migration to crop areas is expected. Crickets now largely in the adult stage, and, if they react as in previous years, their tendency will be to migrate higher rather than toward crops. Some migration reported as taking place in western Idaho from higher elevations to the crop lands, but crop protection has been so effective that it is expected that injury will be prevented, even if migration takes place. Reports from eastern Idaho indicate that control has been very successful.

South Dakota. (June 9-15): Infestation in the Rosebud area, in Jones and Lyman Counties, and in northwestern and central Mellette and Lyman Counties and in western Jones County reported as heavy. In some of the areas crickets were found at the rate of from 50 to 100 per square yard. Bands have been found which are from 1 to $1\frac{1}{2}$ miles wide and 5 miles long.

Montana. (June 9-15): Only a few migrations reported. In most sections the crickets range from third instar to adult stage. In the Sanders County area eggs are still in the early stage of development, yet crickets are in the adult stage and some mating has taken place.

Wyoming. (June 9-15): A small amount of crop damage, confined largely to grain, has been noticed, but it appears that damage will be comparatively light. Crickets are in the adult stage at the lower elevations in Hot Springs County, whereas on the higher slopes of the Owl Creek Range they are largely in the sixth and seventh instars. In the Big Horn Mountains of Sheridan County there are still numerous unhatched eggs. In Crook County crickets range from the third to the sixth instars, with unhatched eggs present at the higher elevations.

Nevada. (June 9-15): Rather serious migrations into crop areas have occurred at South Fork, and minor damage has been done to cultivated crops. Movements of crickets are rather general throughout the infested areas in the State. The greater number of the crickets are now adult, and copulation was noted on June 13 in areas south of Elko. On June 15 crickets were practically continuous for 34 miles south of Elko.

Idaho. (June 2-8): Mormon crickets throughout the infested eastern part of the State are mostly in the adult stage at the lower elevations, while in the higher regions they are in third to fifth instars. Gravid females were reported on June 8 in Madison County.

Idaho. (June 9-15): Migrations are taking place in Washington, Adams, Owyhee, Elmore, Fremont, and Clark Counties. Most of the crickets are now adult. Copulation has been observed in nearly all counties, and females are nearly ready to begin ovipositing.

Utah. (June 2-8): Mormon crickets in large numbers are now migrating from higher elevations toward crop areas in all infested areas in the State. Approximately 90 percent of the crickets are in the adult stage. Mating first reported on June 3, but oviposition has not been observed. Several flocks of from 5,000 to 6,000 sea gulls per flock were reported feeding on crickets in various infested areas. (June 9-15): Crickets are beginning to oviposit in Tooele County.

Oregon. (June 9-15): Crickets in Wasco, Baker, and Jefferson Counties are now adult, and egg deposition has begun.

Washington. L. G. Smith (June 5): Approximately 95 percent of the Mormon crickets in Franklin County on May 25 were in the adult stage, the rest being in the sixth and seventh instars. Population ranged from 16 to 38 per square yard. Migrations occurred only in the early hours of the morning, and feeding was observed on sunflowers, greasewood, and pigweed. Little or no damage had been done to wheat and rye.

CUTWORMS (Noctuidae)

Ohio. E. W. Mendenhall (June 6): Garden cutworms (Peridroma margaritosa Hb.) were very abundant in central Ohio on beans and other garden vegetables doing considerable damage to early planted gardens.

Indiana. J. J. Davis (June 22): Common in many areas, but perhaps the major species is the so-called overflow worm (Agrotis ypsilon Rott.), which has been responsible for much damage to corn. Other damage has been done to tomato and garden crops in general.

Minnesota. A. G. Ruggles and assistants (June): Nephelodes emmedonia Cram. moderately abundant in fields of hay and on foliage of trees at Perham and Preston.

North Dakota. F. G. Butcher (June 25): Underground-feeding by the pale western cutworm (A. orthogonia Morr.) appears much less abundant than usual.

Nebraska. H. D. Tate (June 18): Extensive damage reported to corn on irrigated land on June 3 from Valley County. Specimen of western army cutworm moth (Choristagrotis auxiliaris Grote) received on June 12 from Douglas County with a request for control information.

New Mexico. J. R. Eyer (June 8): Outbreak of the pale western cutworm

reported in the northeastern counties of Quay and Union. Particularly injurious to wheat.

California. S. Lockwood (June 10): During the month the variegated cutworm was responsible for rather heavy losses in the Half Moon Bay area to vetch planted for seed production.

C. C. Wilson (June 11): P. margaritosa attacked approximately 1,000 acres of mustard and a number of fields of sugar beets and tomatoes in Santa Barbara and San Luis Obispo Counties early in May. Infestation was general, though damage was confined largely to mustard, and ranged from 10 to 90 percent. Examination of soil indicated an average of 8 pupae per square yard, 50 percent of which were attacked by parasites. Larvae were being attacked by predators and a fungous disease.

ARMYWORM (Cirphis unipuncta Haw.)

Connecticut. A. W. Morrill, Jr. (June 20): Collected in great numbers on a field of sun-grown tobacco in East Windsor.

New York. L. A. Carruth (June 24): Larvae found causing slight injury to young sweet corn plants in Nassau County, Long Island.

Minnesota. A. E. Pritchard (June 26): On June 22 a very heavy flight of moths was observed in southern Clay County, especially in the area between Barnesville, Downer, and Sabin. No flight observed near Moorhead on June 23, and only a few moths observed on June 24 in southern Wilkin County. On June 25 only a few moths were observed in Breckenridge.

North Dakota. F. G. Butcher (June 25): Recent flight of moths suggests possibility that armyworms will be abundant.

Nebraska. H. D. Tate (June 18): Specimens sent from Franklin County on June 12.

FALL ARMYWORM (Laphygma frugiperda A. & S.)

New York. L. A. Carruth (June 24): Found on Long Island on June 18. Second- or third-instar larvae were feeding in early sweet corn fields, located reasonably close to fields that suffered severe injury in 1939. Because of the early date and the heavy infestations of last year, the possibility that this insect overwintered on Long Island must be seriously considered.

Mississippi. C. Lyle and assistants (June 25): Reported as causing light damage to corn in Monroe and Lee Counties, and as present in a light infestation in the Meridian area.

BEEF WEBWORM (Loxostege sticticalis L.)

North Dakota. F. G. Butcher (June 25): Very abundant the last 2 weeks. Indications are that large numbers of larval forms may soon be anticipated.

Utah. G. F. Knowlton (June 7): Moths moderately abundant at lights at Vernal. Less abundant in light-trap catches at Logan than during the same time in 1939.

Washington. D. D. Jackson (June 12): Reported as attacking truck crops, sweetclover, and peas with severe damage in some localities. Larvae eating large quantities at present.

GARDEN WEBWORM (Loxostege similalis Guen.)

Texas. A. Kagan (June 8): Larvae collected on June 5 on cotton at Waco. (Det. by C. Heinrich.)

MAY BEETLES (Phyllophaga spp.)

New York. N. Y. State Coll. Agr. News Letter (June 3): Extensive flights already seen in Clinton, Erie, Essex, Oswego, Jefferson, Lewis, Schuyler, Wayne, Monroe, Steuben, Tompkins, Cortland, and Ulster Counties.

Pennsylvania. A. B. Champlain (June 11): P. tristis F. reported in swarms on chestnut oak at Kutztown in eastern Pennsylvania.

Ohio. T. H. Parks (June 18): Heavy defoliation of oaks has occurred throughout central and eastern Ohio. Oaks standing in or joining blue-grass pastures are most seriously injured. Beetles disappeared about June 15.

Michigan. R. Hutson (June 22): White grubs in strawberries reported from Montrose, Detroit, and Flint, and in corn from Caledonia.

Wisconsin. T. R. Chamberlin, et al. (May): Adults of the "C" brood in southern Wisconsin are most abundant in Iowa, Lafayette, and the eastern part of Grant Counties, with some overlapping in nearby areas. In this flight P. hirticula Knoch has been the predominant species. Study of the beetle flight has been handicapped this season, however, by frequent heavy rains, most of which have been followed by cool weather. For this reason P. fusca Froel., which emerges earlier in the season and at lower temperatures than P. hirticula, has been more numerous in most of the collection, despite the fact that P. hirticula is known to be much more abundant in the soil. Apparently, therefore, the period of maximum flight has not yet arrived.

- Minnesota. A. A. Granovsky (June 13): White grubs moderately abundant in Saint Paul. Damage done by "A" brood in last year of growth. June beetles in "C" brood rather abundant.
- Kansas. H. R. Bryson (June 25): Considerable injury to strawberry beds and lawns generally. Adults of P. submucida Lec. abundant at Manhattan. P. lanceolata Say is more abundant than last year, but not nearly so abundant as in 1938.
- Oklahoma. R. G. Dahms (June 24): Adults of P. lanceolata and P. cribrosa Lec. caused serious injury to some cottonfields in Cotton and Comanche Counties during first 10 days of June.
- ROSE CHAFER (Macrodactylus subspinosus F.)
- Massachusetts. A. I. Bourne (June 20): First noticed on June 12-14. Not very abundant, though several reports of serious damage have been received.
- Connecticut. E. P. Felt (June 25): Has appeared in small numbers in southwestern Connecticut.
- New York. R. E. Horsey (June): Reported as abundant on trees and shrubs in Greece, north of Rochester, on June 18; also found on roses and peonies but not common; little damage in the southern part of Rochester on June 18.
- E. P. Felt (June 25): Appeared in small numbers in southeastern New York.
- N. Y. State Coll. Agr. News Letter (June 24): Reported as giving usual severe trouble on sandy soil in Monroe County, western New York. Have increased in numbers this week over last and have attacked everything from strawberries and potatoes to peaches and apples in Wayne County.
- Maryland. F. F. Smith (June 21): Very abundant on roses near Silver Spring. Only a few adults remaining by June 20. White and pink varieties more severely injured than dark red.
- District of Columbia. H. Sollers (June 24): Found in rose buds on June 22 in the northwestern part of Washington.
- Ohio. J. S. Houser (June): Unusually prevalent in Ohio. Complaints of general feeding in fruits, ornamental flowers, and foliage of trees are common. Significant damage to peach reported.
- Indiana. J. J. Davis (June 22): Reported from the northern tier of counties. Crops reported as attacked included rose and other flowers, grape, raspberry, and garden vegetables. First report received on June 15.

Michigan. R. Hutson (June 22): Common throughout the lower half of the State. Particularly destructive to grapes, peaches, roses, and peonies.

Tennessee. G. M. Bentley (June 24): Causing damage to fruit on plum trees at Crossville, Cumberland County, on June 21.

JAPANESE BEETLE (Popillia japonica Newm.)

Connecticut. J. P. Johnson (June 19): Pupae found in the soil for first time on June 18.

New York. N. Y. State Coll. Agr. News Letter (June 3): Examination of 50 different areas, where several square feet of turf were examined, showed 135 larvae per square foot, averaging 78 per square foot, in Westchester County.

Delaware. L. A. Stearns (June 17): First adults observed today at Newark.

District of Columbia. H. Sollers (June 26): Found in rose buds, on althea bushes, and on pussy willow in northwestern Washington. Twenty-five adults found in one yard in the last 2 days.

Virginia. H. G. Walker and L. D. Anderson (June 24): First adult caught in traps at Norfolk on June 13. A total of 195 beetles had been caught in 24 yellow traps by June 23, as compared with a catch of 91 beetles in the old-style, green- and aluminum-painted traps on the same date last year. More abundant in the Norfolk area this year.

ASIATIC GARDEN BEETLE (Autorica castanea Arrow)

District of Columbia. Isabelle Smith (June 24): Found in garden in northwest section of Washington. Injury first noticed on rose foliage.

SUGARCANE BEETLE (Eutheola rugiceps Lec.)

Virginia. C. R. Willey (June): Reported as doing considerable damage on June 18 in a cornfield at Bowlers Wharf.

Mississippi. C. Lyle (June 25): Specimens received from Lowndes County, where they were feeding on corn; also damaging corn in Holmes County and in the Durant area.

Louisiana. M. T. Young (May 23): Injury on rice reported as normal. One fairly heavy infestation found at Franklin.

CARROT BEETLE (Ligyrus gibbosus Deg.)

Illinois. W. P. Flint (June 19): Unusually heavy flight in central Illinois.

Kansas. H. R. Bryson (June 25): More abundant than for the last two years.

A SCARABAEID (Aphodius sp.)

Louisiana. T. E. Snyder (June 18): Unusually large flight of small, black beetles present over an area $\frac{1}{2}$ mile in extent near New Orleans. Weather is hot and damp.

A WEEVIL (Calomycterus setarius Roelofs)

Maryland. E. N. Cory (June 17): Began to emerge on June 14 at Towson.

IMBRICATED SNOUT BEETLE (Epicaerus imbricatus Say)

Indiana. J. J. Davis (June 3): Reported on May 31 from Floyd County, in the extreme southern part of the State, as destroying many new strawberry plantings.

Alabama. J. M. Robinson (June 13): Reported on beans and onions at Oneonta on May 15.

Nebraska. H. D. Tate (June 18): Present in abundance in Nemaha County.

WIREWORMS (Elateridae)

Maine. J. H. Hawkins (June 12): Adults of Cryptohypnus abbreviatus Say cluster around the base of cucumber plants at Monmouth and destroy the stem at or near the surface. (June 17): Adults of Agriotes mancus Say were taken at clover baits, beginning on June 15. Larvae attacking corn and potatoes throughout central Maine.

Connecticut. A. W. Morrill, Jr. (June 22): Wireworms, chiefly Limonius agonus Say, have caused considerable resetting in numbers of fields of shade-grown tobacco. Damage less abundant because of weather conditions.

New York. N. Y. State Coll. Agr. News Letter (June 10): What were believed to be eastern field and corn wireworms were found in separate fields in Wayne County, rather severely infesting cabbage plants. In Monroe County, the eastern field wireworm has been found damaging some plantings of early cabbage. Few cases of serious injury to tomatoes observed. (June 17): Reported as causing severe injury to onions in new muck in Genesee County. Rather serious on corn in Orleans County.

Alabama. J. M. Robinson (June 5): Specimens of larvae (Conoderus sp., probably C. auritus Hbst.) found attacking peanut roots at Enterprise. (Det. by W. H. Anderson.)

Mississippi. C. Lyle (June 25): Specimen of sand wireworm (Horistonotus uhlerii Horn) received from Smith and Jefferson Davis Counties, where corn was seriously injured.

Ohio. T. H. Parks (June 20): Field of corn in Brown County, southwestern Ohio, reported as being badly infested.

Indiana. J. J. Davis (June 22): Serious losses to corn and tomatoes in Johnson County, central Indiana. Many tobacco plantings in Switzerland County, southeastern corner of Indiana, destroyed. Reported as destroying 5,000 plants in a field containing 9,000 plants.

Wisconsin. C. L. Fluke (June 21): Reported as causing severe damage to young corn in Chippewa and Crawford Counties.

Minnesota. A. G. Ruggles and assistants (June): Reported as moderately abundant in Saint Paul and infesting corn, especially.

Iowa. H. E. Jaques (June): Reported as abundant and scattered throughout the entire State.

North Dakota. F. G. Butcher (June 25): Considerable injury to cereals during recent weeks. Reports of major injury have been received from northwestern and eastern areas of the State, especially in the vicinity of Minot, in Ward County, and Finley, in Steele County, where adults are rather abundant.

Nebraska. H. D. Tate (June 18): Numerous complaints of damage to corn received during period May 16 to June 15. Melanotus cribulosus Lec. found attacking corn in Washington, Nemaha, and Sarpy Counties on May 16, May 27, and June 15, respectively. M. pilosus Blatch. also found in Nemaha County, while on May 20 a report of damage to corn by M. fissilis Say was received from Dakota County. Reports on May 25 from Washington County and on June 13 from Gage County of damage to corn by Aeolus dorsalis Say.

Idaho. F. H. Shirck (June 5): L. californicus Mann. very active at Parma during the last of May and the early part of June. Sugar beets, corn, and seed lettuce plantings most seriously affected.

Utah. G. F. Knowlton (June 22): Reported as damaging sugar beets in a field at Bear River City.

SAY'S STINKBUG (Chlorochroa sayi Stal)

New Mexico. J. R. Eyer (June 8): Becoming abundant and increasingly injurious in the southwestern counties, particularly in Dona Ana, Hidalgo, and Luna. Reported as extremely abundant in fields of seed beets, oats, barley, and wheat. Adults are mating and just beginning to lay eggs.

CEREAL AND FORAGE - CROP INSECTS

CORN

CHINCH BUG (Blissus leucopterus Say)

- Ohio. T. H. Parks (June 25): Chinch bugs were difficult to find in most fields in central and western Ohio, but a few adults and first- and second-instar nymphs were observed this week in wheat at Van Wert and Columbus. No serious damage is expected.
- Indiana. C. Benton (June 17): Except for a slight drop from a general average of 9 to 7 per foot of drill row, in La Fayette, the adult population in winter wheat remains similar to the last 2 weeks, although the general stand of wheat and weedy undergrowth has become more rank during this period. First-brood nymphs were showing rapid increase. Many of the heavily infested thin spots in wheat show an average of 25 or more, and in spots even 50 or more, nymphs per foot of drill row. Over 95 percent of these are first-instar nymphs. First-instar nymphs were first observed on June 14, and a few third-instar nymphs were found today. Many adults are moving to adjacent corn, as high as 12 or more being found per hill of corn. Oats in this locality still show a trace of infestation.
- J. J. Davis (June 22): Bugs overwintered in threatening numbers; however, rank growth of wheat, resulting in dense shade, has been unfavorable and many of the adults left the dense wheat to go over to corn, where they have laid eggs and where first-instar nymphs occur.
- Illinois. W. P. Flint (June 19): Heavy rains during May have considerably reduced the population all over the State. There are still some spotted fields where damage may occur. It is estimated that the population has been reduced from about 60 to 75 percent. Owing to frequent rains, many bugs left wheat and went into corn when it first came up. In most instances the corn had sufficient moisture to outgrow any damage.
- Iowa. H. E. Jaques (June): Abundant in the southern counties of the State.
- Nebraska. H. D. Tate (June 18): Inquiries concerning methods of controlling chinch bugs were received during the period May 31 to June 15 from Richardson, Otoe, and Cass Counties. A report on June 14 indicated that newly hatched bugs were destroying corn in Cass County.
- Kansas. H. R. Bryson (June 25): More abundant and causing injury over a much larger area than last year. Barley fields, and fields where chess or cheat occurs, are heavily infested. Reported as migrating into corn and sorghums from pastures in which little barley is prevalent. Winter wheat closely pastured late this spring furnished a considerable migration into adjoining cultivated crops. Very few of first generation nymphs have reached the adult stage. First adult observed at Manhattan

today. Majority are in the third and fourth instars with a considerable number of second instar still present. This situation has forced the nymphs to migrate as the small grains are being harvested. Some injury still resulting from concentrations of overwintered adults on small sorghum plants.

Arkansas. D. Isely (June 19): More important than usual in counties in the northeastern delta of the State, ranging from near the Arkansas River on the south and northward to the Missouri State line. Injury was not severe, but the bugs may be found in nearly all cornfields in this part of the State.

Oklahoma. C. F. Stiles (June 26): Unusually abundant throughout the northeastern part of the State despite the heavy rains. The counties most heavily infested are Okmulgee, Creek, Rogers, Muskogee, Nowata, Craig, Ottawa, Mayes, and Wagoner.

R. G. Dahms (June 24): Owing to weather conditions, the bugs are about 10 days later in development than is normal. First-generational adults were first observed on June 5 and eggs from these were found on June 18. Adults have been flying from small-grain fields to corn and sorghums since about June 10, and this migration is almost complete. Infestation is spotted in southwestern Oklahoma and only local injury is expected.

F. A. Fenton (June 24): Migration began in the vicinity of Stillwater during the last week in May, and is continuing at present. Most of the insects are in the fourth or fifth instar and a small proportion have reached the adult stage.

CORN EAR WORM (Heliothis armigera Hbn.)

Georgia. T. L. Bissell (June 22): In Griffin the larvae are half to full grown and are destroying corn tassels before they open. Eggs are abundant on silks.

Mississippi. C. Lyle (June 25): Reports indicate that corn has been attacked in the southern part of the State.

Kansas. H. R. Bryson (June 25): Eggs are abundant on the silks of early sweet corn. Larvae have caused some injury to the curl.

Texas. K. P. Ewing, et al. (June 8): In examining 1,000 silks in 10 upland fields in McLennan County, eggs were found to range from 13 to 118 per 100 silks, averaging 47.2 eggs per 100 silks. Larvae were found feeding in tips of silking ears at the rate of from 1 to 4 per 100 plants, averaging 1.6 per 100 ears. (June 22): In examining 500 ears of corn in bottom fields, 370 were found injured. Injury ranged from 64 to 95 per 100 ears, averaging 74. In examining 500 ears in upland fields, injury was found to range from 73 to 97 per 100 ears, averaging 82. At Riesel

1,800 ears of corn were examined, revealing an average of 1.22 emergence holes per 100 ears. Nearly all of the ears were infested, but emergence has not taken place.

Utah. G. F. Knowlton and D. L. Sargent (May 23): A second moth was collected in a trap light at Cedar City today.

STALK BORER (Papaipema nebris nitela Guen.)

Maine. J. H. Hawkins (June 15): Sweet corn was generally affected in gardens at Orono and in the canning areas.

Georgia. H. O. Lund (June 12): Reported that 10 to 15 percent of the stalks were injured in a 100-acre cornfield at Buchanan, Haralson County.

EUROPEAN CORN BORER (Pyrausta nubilalis Hbn.)

Massachusetts. A. I. Bourne (June 20): First moth was noticed about June 4 to 5, considerably later than usual. Emergence of the moths is taking place considerably earlier than usual in relation to the development of corn.

Connecticut. N. Turner (June 20): The first eggs were found at Mount Carmel, in the southern part of the State, on June 4, about a week later than last year. Cool nights have reduced the number of eggs and delayed oviposition. A few fields of sweet corn have heavy infestations.

New York. N. Y. State Coll. Agr. News Letter (June 10): Several batches of eggs were found on June 7 in western Suffolk County, on plants about 8 inches high. Emergence is about 20 percent in Nassau County and nearly as high in Columbia and Rensselaer Counties. Egg masses are slow in appearing, owing to the backward season. (June 17): During the last week moth emergence has reached about 75 percent on Long Island, and in Columbia and Rensselaer Counties. Eggs have begun to hatch, although they are relatively scarce on Long Island. In Columbia County a number of early sweet corn fields average nearly an egg mass per plant. One field in Rensselaer County has about 3 per plant. In Dutchess County eggs were noted at Red Hook on June 14. Eggs were found in Ulster County on early corn in considerable numbers on June 13. (June 24): Moth emergence reached 90 percent during the last week in Nassau County, and nearly as high in the Hudson Valley; and in Rockland County the first borer was observed on June 17, though no extensive injury was found.

Virginia. H. G. Walker and L. D. Anderson (June 24): Appears to be more abundant in potatoes on the Eastern Shore and in Princess Anne County than it has ever been. Dissection of potato plants in a field near Pungo, Princess Anne County, on June 21 showed that 60 percent were in the larval stage; 38 percent were in the pupal stage; and 2 percent had emerged. In Princess Anne County, the infestation ranged from less than 5 percent to over 90 percent of the plants examined in different fields.

SEED-CORN BEETLE (Agonoderus lecontei Chaud.)

Indiana. J. J. Davis (June 8): Reported as feeding in planted corn seed in Lake County.

Wisconsin. C. L. Fluke (June 21): Now causing the most severe damage done in the State during the last 25 years. It has ruined entire fields in Waushara, Fond du Lac, and Wood Counties, and has done less damage in many fields throughout southern Wisconsin.

Iowa. H. E. Jaques (June): Noted in the west-central counties of Monona and Carroll.

Nebraska. H. D. Tate (June 18): Seed-corn beetles were attacking corn in Dakota, Washington, and Gage Counties, according to reports received on May 21, May 27, and June 14, respectively.

GRAPE COLASPIS (Colaspis brunnea F.)

Indiana. J. J. Davis (June 22): Grub injury to corn was first observed near Mitchell, and similar injury was reported as common in the vicinity. Reported since from many localities in the southern half of the State. First reports received on June 15. All infestations were in spring-plowed fields and, with few exceptions, following lespedeza. On June 1 it was reported from Jeffersonville that, in a cornfield planted a little later than other fields inspected, it was very easy to find from 1 to 3 grubs in almost every hill. This field was in lespedeza last year. This insect was observed to have destroyed considerable corn acreage, following timothy, at Ambia, in west-central Indiana.

Illinois. W. P. Flint (June 19): Serious damage from feeding of the larvae has occurred throughout central and northern Illinois. As is usually the case, the damage has been practically all on corn following legumes. In the south-central part of the State damage seems to be more severe on corn following lespedeza.

CORN BILLBUGS (Calendra spp.)

Kentucky. W. A. Price (June 27): A field of corn near Lexington was observed on June 13 to have 100-percent injury by C. destructor Chitt.

Minnesota. A. G. Ruggles and assistants (June): C. aequalis Gyll. was moderately abundant on corn at Saint Peter, Nicollet County, and in Yellow Medicine County.

Iowa. H. E. Jaques (June): Damage noted as scattered throughout the southern half of the State. Worth County, in the north, was infested.

Alabama. J. M. Robinson (June 13): Found on corn at Three Notch on May 16.

Mississippi. C. Lyle (June 25): C. callosa Oliv. was reported as having injured corn in Calhoun County early in June.

ALFALFA AND CLOVER

A WEEVIL (Sitona cylindricollis Fahraeus)

Illinois. W. P. Flint (June 19): Found in the State for the first time this year. It undoubtedly has been here for several years, as it is distributed throughout the northern counties and has caused serious damage to spring-seeded sweetclover, completely destroying some fields. Considerable damage was caused also to some old sweetclover plantings. Beetles were present in these fields by the thousands. (Det. by L. L. Buchanan.)

ALFALFA WEEVIL (Hypera postica Gyll.)

Utah. G. F. Knowlton (June 7): Owing to injury caused by this weevil, alfalfa was cut early in many parts of the State.

California. A. E. Michelbacher (June 22): The second brood in the San Joaquin Valley is beginning to make its appearance. On June 17 the number of larvae collected per 100 sweeps in the different fields ranged from 2 to 650. On the same date in the region adjacent to San Francisco Bay, the weevil was very scarce. The number of larvae collected in the different fields ranged from 1 to 7. Parasitization by Bathyplectes curculionis Thoms. was moderate in the San Joaquin Valley, but considerable in the region adjacent to San Francisco Bay.

CLOVER LEAF WEEVIL (Hypera punctata F.)

North Dakota. F. G. Butcher (June 25): Observed in typical feeding activities for the first time in the State. Injury to new seedings and to older plantings was general throughout the northeastern areas. To date it has caused no concern to farm operators in the area.

Nebraska. J. C. Hamlin (June 4): Larva was collected at Omaha on May 23. (Det. by W. H. Anderson.)

CLOVER ROOT BORER (Hylastinus obscurus Marsham)

Idaho. J. R. Douglass (June 1): A serious pest of clover in south-central Idaho, and more complaints received of this insect than of any other during the present season. Field after field of clover grown for seed was plowed up and planted with other crops. On May 20 a large number of plants was examined and adults were present in every plant but one. All plants brought in by growers have been infested. (Det. by M. W. Blackman.)

ALFALFA BUTTERFLY (Colias eurytheme Bdv.)

California. A. E. Michelbacher (June 22): Larvae were collected in the San Joaquin Valley and ranged from 1 to 206 per 100 sweeps on June 1. In the region adjacent to the San Francisco Bay they ranged from 1 to 102. Parasitization by Apanteles flaviconchae Riley was small, although in several fields about 60 percent of the small larvae were parasitized.

ALFALFA LOOPER (Autographa californica Speyer)

Montana. H. B. Mills (June 25): Attacking alfalfa in Lake and Lewis and Clark Counties. Adults were abundant at light trap at Bozeman, Gallatin County. More abundant than average.

COWPEAS

COWPEA CURCULIO (Chalcodermus aeneus Boh.)

Georgia. T. L. Bissell (June 26): There were a few in evidence at Experiment, Central Georgia, on June 22, but plants are only half grown. At Tifton on June 24, adults were found puncturing pods, and a few were found with mature grubs in them. One curculio was found on pole beans, some pods being punctured.

VETCH

VETCH BRUCHID (Bruchus brachialis Fahraeus)

Connecticut. M. P. Zappe (June 20): Adults were present on flowering vetch at Wallingford and Hamden. The insect was not known to be present in this State until last year.

GRASS

MEADOW PLANT BUG (Miris dolabratus L.)

Maryland. T. L. Bissell (June 3): Noticed at College Park as abundant on grass. (Det. by P. Knight.)

FRUIT INSECTS

EASTERN TENT CATERPILLAR (Malacosoma americana F.)

- Vermont. J. V. Schaffner, Jr. (June 14): Hatching at Springfield began on April 29 on wild apple trees situated on a southeasterly slope in a rather protected spot.
- Connecticut. P. Wallace (June 10): Observed but not common throughout Litchfield, Hartford, Tolland, New Haven, Middlesex, and Fairfield Counties. More abundant in Fairfield County than elsewhere.
- New York. P. B. Dowden (June 14): Hatching just beginning at Pharsalia, Chenango County, on May 2.
- Delaware. L. A. Stearns (May 31): Nests just becoming noticeable on May 6; nests and damage conspicuous by May 24; larvae now mature and migrating.
- Ohio. T. H. Parks (June 20): Very abundant in the eastern counties during June.

SHOT-HOLE BORER (Scolytus rugulosus Ratz.)

- Connecticut. P. Wallace (June 6): Abundant in peach at Hamden. Fifty percent of adults and pupae parasitized and dead in cells.
- Texas. R. K. Fletcher (June 21): Found in peach on June 10 in Harris County.
- Washington. W. S. Gillard (June 5): Extensive injury to pear and apple in the Underwood locality, in Skamania County, on May 31. More abundant than heretofore.

WESTERN SPOTTED CUCUMBER BEETLE (Diabrotica soror Lec.)

- California. A. E. Michelbacher (June 22): Some damage to apricots. An average of 410 beetles taken from each tree in an orchard at Brentwood. In several orchards the count per tree was between 200 and 300.

A WEEVIL (Peritelinus oregonus Van D.)

- Oregon. S. M. Dohanian (May 18): About 10 percent of the trees in a young filbert orchard at Alvadore, Lane County (planted in February, 1940), were partially defoliated, and by actual count 3 percent were entirely defoliated. There were 2 foci in the 30-acre orchard in which the damage was serious. Near these centers as many as 38 weevils per tree were counted, and in a number of instances 8 to 11 weevils were found feeding on 1 leaf. Adults were seen feeding on 2 young walnuts planted in the filbert orchard, and on several prune trees in old orchards adjacent to the filbert plantation. (Det. by L. L. Buchanan.)

APPLE

CODLING MOTH (*Carpocapsa pomonella* L.)

New York. D. W. Hamilton (June 24): Adults began appearing in bait traps at Poughkeepsie, eastern New York, on May 26, but only a few taken before June 1. Total captures in 10 bait traps located in the same trees for the last 5 years are the heaviest on record, amounting to 2,210 moths. Peak captures occurred from June 3 to 14. First larval entrances in fruit found on June 11. Owing to ideal weather conditions and the heavy adult population, entrances have been unusually numerous in poorly treated orchards during the last 2 weeks, 420 entrances having been removed from one untreated tree near Poughkeepsie.

N. Y. State Coll. Agr. News Letter (June 10): In western New York first adults emerged from the cage at Lewiston, Niagara County, and at Sodus, Wayne County, on June 5. (June 24): Rapid emergence, and many eggs laid up to June 20 at Geneva. Cage records for western New York indicated that more than 50 percent of the moths had emerged in the early zones and approximately 20 percent in the Lake zone. Eggs laid very rapidly in Niagara County prior to the cold wave, and many entrances made. First entrances in Monroe County observed on June 17. In Wayne County moths stopped flight for 3 days, owing to cool weather.

Delaware. L. A. Stearns (June 19): Emergence of spring brood ended on about June 18; peak of flight on night of May 20; few entries by June 13, and most of these recent; infestation by first brood observed to be the lightest in 10 years.

Virginia. A. M. Woodside (June 24): Larvae began entering apples in Augusta County on about May 31. Emergence of adults in the insectary complete by June 17. Moths still being captured in bait traps. Entries of larvae into fruit apparently reached a peak on about June 15. (June 25): First brood larvae beginning to leave apples in the vicinity of Staunton.

W. S. Hough (June 15): Hatching began about June 2 in the vicinity of Winchester, and entries have increased rapidly to date. Moth emergence and oviposition began considerably later than usual.

Ohio. T. H. Parks (June 20): Bait-pan catches started in earnest on June 1 and have been regular and high most of the time since then in the vicinity of Columbus. First larval entrances at Columbus noticed on June 10. There is a close parallel development of the insect in the central and northern counties. Indications are that numbers are above normal.

Indiana. L. F. Steiner (June 6): Bait-trap catches in 284 traps during the last week in the Vincennes area totaled approximately 3,979. Larvae entering fruit this week in relatively large numbers. (June 12): Emergence continued to fall off during the last week, and the numbers caught in traps were approximately two-thirds less than during the preceding week. Hatching has continued rapidly since June 3, with no

apparent let-up. No mature larvae observed. (June 20): Bait-trap catches in the Vincennes area have remained constant throughout the week, daily catches ranging from 125 to 150 moths for the 285 traps. Emergence has almost ceased, and hatch of larvae slowed up considerably. First mature larvae found about to leave apples on June 17, 9 days later than in 1939.

Michigan. R. Hutson (June 22): Emergence began at Mason on June 2.

Missouri and Kansas. H. Baker (June 24): Bait-trap catches of spring-brood moths heavy in northwestern Missouri and northeastern Kansas during the period May 27 to June 6 and reached their peak on June 2-3. Activity of first-brood larvae first observed on June 3. First mature larvae observed leaving fruit on June 21. Damage by first-brood larvae materially curtailed by cool, rainy weather and is less than expected.

Washington. W. S. Gillard (June 5): A few hot days brought on extensive moth activity in the Underwood area, Skamania County, 92 moths being taken from 1 trap in 1 night.

L. G. Smith (June 19): Still a large number of eggs, in various stages of development, on the fruit.

A MOTH (Conopia pyri Harr.)

Virginia. W. S. Hough (June 15): Being caught in relatively large numbers in bait pails in some orchards in the vicinity of Winchester.

FRUIT TREE LEAF ROLLER (Cacoecia argyrosplia Walk.)

New York. N. Y. State Coll. Agr. News Letter (June 24): Considerable injury to fruit and foliage in the lower Hudson Valley and in the Lake district of western New York.

Indiana. S. A. Summerland (June 24): Adults caught in bait pails in the Vincennes area in large numbers since June 3. Catch in 132 traps during the last week totaled 3,429 moths.

Illinois. W. P. Flint (June 19): Feeding has ceased throughout the southern three-fourths of Illinois, and adults are now very abundant, several thousand being caught nightly in light traps at Urbana. Severe damage to orchards in western Illinois.

Nebraska. H. D. Tate (June 18): Found to be infesting an orchard in Brown County on May 25.

ROSE LEAF BEETLE (Nodonota puncticollis Say)

New York. N. Y. State Coll. Agr. News Letter (June 24): Considerable injury caused in the lower Hudson River Valley.

Virginia. W. S. Hough (June 15): Found in relatively large numbers in many localities in the Winchester area, and considerable damage has occurred on apples.

APPLE MAGGOT (Rhagoletis pomonella Walsh)

New York. N. Y. State Coll. Agr. News Letter (June 24): First fly of the season caught in an emergence trap at Poughkeepsie on June 20.

ROSY APPLE APHID (Anuraphis roseus Baker)

Massachusetts. A. I. Bourne (June 20): Reported as abundant throughout the eastern part of Plymouth County. Treated trees practically free.

Connecticut. P. Garman (June 21): Severe in most localities; abundant in a few orchards locally.

New York. N. Y. State Coll. Agr. News Letter (June 3): Found again in an orchard where they caused damage last year in Genesee County, western New York. (June 10): Increasing in untreated orchards but still not serious in Erie, Monroe, and Wayne Counties, western New York. (June 11) Rapidly becoming winged in Rockland County, eastern New York, and at least 50 to 60 percent of the fruits injured in one orchard on June 12. Found in scattered locations in Niagara County, but no commercial damage seen.

Delaware. L. A. Stearns (May 31): Infestation generally light.

Maryland. E. N. Cory (June 14): Considerable damage in Washington County.

Virginia. W. S. Hough (June 15): Third generation is causing severe damage in northern Virginia in untreated, as well as in improperly treated orchards. Relatively few aphids of any kind found on buds early in the spring, but natural enemies were not present in time to check the development of the aphid during the first and second generations.

Ohio. T. H. Parks (June 20): Colonies appeared in many apple orchards over Ohio early in June. Predators had taken control by the third week in June and few aphids were found on June 19.

Indiana. L. F. Steiner (June 12): About as abundant as a week ago in the Vincennes area, considerable damage occurring in some orchards.

Washington. Ortho News (May 27): Abundant and injurious. Comparatively little trouble in properly treated orchards.

APPLE APHID (Aphis pomi Deg.)

New York. N. Y. State Coll. Agr. News Letter (June 3): Multiplying rapidly in a few orchards in Clinton County, eastern New York, despite moderate numbers of ladybeetles. (June 24): More noticeable now than previous in Wayne and Niagara Counties.

Indiana. L. F. Steiner (June 12): Rapidly increasing in some orchards in the Vincennes area. (June 20): Still increasing around Vincennes.

LEAFHOPPERS (Cicadellidae)

Connecticut. P. Garman (June 21): Typhlocyba pomaria McAtee ranges from scarce in some orchards to abundant in a few.

New York. N. Y. State Coll. Agr. News Letter (June 24): T. pomaria is abundant in the lower Hudson River Valley, and also in Wayne County, western New York.

Maryland. E. N. Cory (June 14): White apple leafhopper developing in large numbers in Washington County.

Indiana. L. F. Steiner (June 12): Less abundant than normal in the Vincennes area, but severe infestations reported by growers farther north, in west-central Indiana.

PEACH

ORIENTAL FRUIT MOTH (Grapholitha molesta Busck)

Delaware. L. A. Stearns (June 19): Emergence of spring-brood moths ended on June 10; twig injury moderate, first-brood larvae being about two-thirds mature on May 31; larvae full grown and pupating by June 7.

Virginia. W. S. Hough (June 15): Twig injury noted at Winchester since late in May. Some larvae have entered the fruit, more having been observed in peaches than in previous seasons.

Georgia. O. I. Snapp (June 21): Infestation at Fort Valley, central Georgia, is about average. Not economically important in commercial peach orchards at Fort Valley.

Florida. G. B. Merrill (June 22): Very abundant on young trees 13 miles northeast of De Funiak Springs, Walton County. According to the owner, the trees were similarly affected last year.

Mississippi. C. Lyle (June 25): Injury to peach twigs reported from Hinds County and injured apple twigs and fruit received from Coahoma and Monroe Counties, respectively. Reports of injury to peach twigs received from Holmes, Sunflower, Oktibbeha, Hinds, Claiborne, and Madison Counties, and from northeastern Mississippi.

Correction.—On page 129 of the Insect Pest Survey Bulletin dated June 1, 1940, it was stated that the oriental fruit moth had been recorded for the first time in Texas. This is erroneous, as there was one previous record in 1925.

PEACH BORER (Conopia exitiosa Say)

Tennessee. G. M. Bentley (June 19): Reported as damaging peach trees at Winchester, Franklin County.

Mississippi. N. D. Peets (June 25): Reported as fairly abundant in Lincoln County.

Nebraska. H. D. Tate (June 18): Reports of injury to peach trees in Otoe and Nemaha Counties received on May 23 and June 11, respectively.

PLUM CURCULIO (Conotrachelus nenuphar Hbst.)

Connecticut. P. Garman (June 21): Locally abundant in apple and peach. Severe damage caused in commercial orchards, although not so severe as last year.

New York. N. Y. State Coll. Agr. News Letter (June 24): As much injury as last year in many orchards in the lower Hudson River Valley and some injury noted in the Lake district.

Virginia. A. M. Woodside (June 24): Larvae have about ceased leaving drop peaches in Augusta County. Adults in insectary still depositing eggs, although at a slower rate. Larvae have pupated in large numbers, but adults have emerged in the cages.

Georgia. O. I. Snapp (June 21): Peak of emergence of larvae from peach drops at Fort Valley occurred on May 21, 22 days later than peak of larval emergence last year. Only 1,675 larvae reared from 1 bushel of drops collected on May 14 in 1 of the most heavily infested orchards in this locality, representing infestation of only about 21 percent. Infestation in the Georgia peach belt considerably lighter than that of an average year. First pupation at Fort Valley recorded in the insectary on May 2. First transformation to adults in the insectary was recorded on June 12. New adults began to emerge from the soil in commercial peach orchards on June 17 and in the insectary on June 18. This is 3 weeks later than last year, and all varieties except Elberta are expected to escape second-brood attack. Many varieties already harvested with practically no damage. Marked increase of adults noted when foraging in peach orchards on June 20, owing to emergence of new adults. (June 24): Peak of emergence of first-generation beetles from the soil occurred at Fort Valley on June 22, 18 days later than last year.

Mississippi. C. Lyle (June 25): Reported as abundant in Hinds and Lincoln Counties, and in the Meridian area.

Tennessee. L. B. Scott (June 25): Normally abundant in north-central Tennessee, and infestation in peaches is about normal.

Ohio. T. H. Parks (June 20): More abundant than usual on apples and stone fruits throughout the State.

Indiana. L. F. Steiner (June 12): A heavy crop of apples in an orchard (untreated for 2 years) in the Vincennes area, has been damaged almost 100 percent.

GREEN STINKBUG (Acrosternum hilare Say)

Virginia. A. M. Woodside (June 24): Heavy damage to fruits of peach in restricted localities in Augusta County. No damage reported nor seen in sections where commercial orchards are located.

PEAR

PEAR PSYLLA (Psylla pyricola Foerst.)

Connecticut. P. Garman (June 21): Very slow in developing; outbreak threatened in one large orchard.

New York. N. Y. State Coll. Agr. News Letter (June 24): Little damage caused anywhere in the State.

PEAR THRIPS (Taeniothrips inconsequens Uzel)

Washington. W. S. Gillard (June 5): Extensive injury on buds of pear in the Underwood area on May 31. More abundant in this area than last year, and the pear drop is heavy.

A PEAR MIDGE (Dasyneura pyri Bouche)

Connecticut. E. P. Felt (June 26): Severe infestation on young leaves at Noroton, many being dwarfed and discolored.

CHERRY

CHERRY LEAF MINER (Profenusa canadensis Marlatt)

Connecticut. E. P. Felt (June 25): Locally abundant at Stamford.

New York. D. W. Hamilton (June 24): Mines present in leaves by May 30 at Hudson, eastern New York. Most of the larvae had left the leaves by June 6. Only a few orchards show injury, the percentage of leaves injured per tree being less than last year, but the number of trees with injured leaves having increased.

New Jersey. E. P. Felt (June 25): Observed at South Orange.

Delaware. E. P. Felt (June 25): Seen at Wilmington.

CHERRY FRUITFLIES (Rhagoletis spp.)

New York. D. W. Hamilton (June 24): Black cherry fruitfly (R. fausta O.S.) adults in emergence cages near Germantown, Columbia County, from June 1 to 5. Cherry fruitfly (R. cingulata Loew) adults were first found in emergence cages at Germantown on June 11. Emergence is still taking place.

Ohio. E. W. Mendenhall (June 21): Sweet cherries in Franklin County badly infested with R. cingulata, especially where not treated.

Michigan. R. Hutson (June 22): R. cingulata reported from Gobles and Stevensville on June 13; from Benton Harbor on June 14; from Grand Rapids on June 17; out in cages with R. fausta at Sparta and Muskegon on June 18; R. fausta out at Shelby on June 20; and R. cingulata reported out in Oceana County on June 21 and in Leelanau County and at Traverse City on June 22.

Washington. W. S. Gillard (June 5): Fly injury began in Skamania County o May 31.

PEAR SLUG (Caliroa cerasi L.)

Utah. G. F. Knowlton (June 22): Cherry foliage seriously injured at Logan

PLUM

PLUM LEAFHOPPER (Macropsis trimaculata Fitch)

Virginia. W. F. Turner (June 21): Collected from wild plum on June 15 in Bedford County. (Det. by P. W. Oman.)

Georgia. W. F. Turner (June 10): Collected from plum in Walker County on June 6. (Det. by P. W. Oman.)

GLOBOSE SCALE (Lecanium prunastri Fonsc.)

Pennsylvania. Mrs. L. C. Smith (June 18): Found on plum at Hanover. (Det. by H. Morrison.)

BRAMBLES

RED-NECKED CANE BORER (Agrilus ruficollis F.)

Minnesota. A. G. Ruggles and assistants (June 7): Unusual numbers observed in raspberry fields in Hennepin County. Moderately abundant on raspberry at Mahanomen, Mahanomen County.

IMPORTED CURRANT WORM (Pteronidea ribesii Scop.)

Minnesota. A. G. Ruggles and assistants (June): Moderately abundant on gooseberry at Saint Paul.

AN APHID (Aphis varians Patch)

Utah. G. F. Knowlton (June 21): Black currant damaged at Morgan and Peterson.

GRAPE

GRAPE LEAFHOPPER (Erythroneura comes Say)

New York. N. Y. State Coll. Agr. News Letter (June 10): Very abundant on grape vines on Long Island. (June 17): Adults are severely damaging foliage in vineyards situated near good hibernation quarters in Chautauqua County, western New York.

GRAPE LEAF FOLDER (Desmia funeralis Hbn.)

Ohio. E. W. Mendenhall (June 1): Present to some extent in central Ohio and damaging foliage.

GRAPE BERRY MOTH (Polychrosis viteana Clem.)

Michigan. R. Hutson (June 22): Hatching started at Lawton in numbers on June 7. Grapes not in full bloom until June 11 and 12.

PECAN

FALL WEBWORM (Hyphantria cunea Drury)

Georgia. O. I. Snapp (June 22): Nests, about 1 week old, observed on June 22 at Fort Valley on apple, walnut, and pecan trees, about 3 weeks later than they appeared last year.

Florida. A. H. Madden (June 21): Becoming moderately abundant on pecan trees in the vicinity of Quincy.

Mississippi. C. Lyle (June 25): Heaviest early infestation in many years appeared in Oktibbeha County on about June 15, some large pecan trees having dozens of webs; also reported as fairly numerous in the southeastern part of the State.

PECAN PHYLLOXERA (Phylloxera devastatrix Perg.).

Mississippi. C. Lyle (June 25): Specimens and reports received from Claiborne, Humphreys, Quitman, Tallahatchie, Warren, and Washington Counties, where pecan trees had been seriously injured. In some instances most of the small nuts had turned into galls. Undoubtedly the worst outbreak in several years, as other counties reported severe injury last month.

APHIDS (Aphidae)

Alabama. J. M. Robinson (June 13): Black pecan aphid (Melanocallis caryae-foliae Davis), the yellow hickory aphid (Monellia caryella Fitch), and the black-margined aphid (M. costalis Fitch) observed on pecan foliage at Auburn on May 22. The giant hickory aphid (Longistigma caryae Harr.) was reported as attacking pecan at Montevallo on May 24.

Mississippi. C. Lyle (June 25): Specimens of L. caryae received from Hiram and Lee Counties, where they were found on magnolia and pecan trees.

CITRUS

CALIFORNIA RED SCALE (Aonidiella aurantii Mask.)

Arizona. C. D. Lebert (June): Two infestations found on citrus in the Phoenix area during June, being spot infestations involving only two or three trees; apparently carry-overs from the original infestation in the same area in 1935. Light infestation on ornamentals, involving 10 or 12 plants of euonymus, Spanish broom, jasmine, and sour orange, found and eradicated in the Tucson area.

California. R. S. Woglum (June): Red scale has been hatching more or less all winter, especially in the warmer areas, resulting in a general increase in most districts, as compared with last year at this time. In the interior the increase is more outstanding on oranges than on lemon. In coastal districts lemons continue to be more seriously affected than oranges.

BLACK SCALE (Saissetia oleae Bern.)

California. R. S. Woglum (June): Very few orchards show heavy infestation in the coastal area of double-brooded black scale from Santa Barbara to San Diego. In the more interior areas it has been increasing, with the exception of a few areas. Most severely affected area extends from Cucamonga to Redlands, where it is much worse than for several years. Some increase in the area from Cucamonga to San Fernando. Scattered orchards in Riverside County severely infested, most of them untreated, but generally well controlled. Hatch well started.

CITRICOLA SCALE (Coccus pseudomagnoliarum Kuw.)

California. R. S. Woglum (June): Increasing in eastern San Bernardino County and at Highgrove and Corona. Hatch well under way. Increase has been steady during the last few years, chiefly owing to favorable weather.

CITRUS THRIPS (Scirtothrips citri Moul.)

California. R. S. Woglum (June): Increase during the last few weeks in most lemon districts of Los Angeles, San Bernardino, and Riverside Counties. Considerable increase on oranges, particularly in eastern San Bernardino County, and to a lesser degree in the western part of the county. Considerable scarring on the new crop of oranges during the last 2 or 3 weeks.

TRUCK - CROP INSECTS

VEGETABLE WEEVIL (Listroderes obliquus Klug)

Louisiana. M. T. Young (May 23): Cold weather had little effect on the vegetable weevil.

Arkansas. D. Isely (June 19): Found to occur in destructive numbers as far west as Garland County.

BLISTER BEETLES (Meloidae)

Georgia. D. F. Farlinger (June 14): Epicauta vittata F. causing light injury on peanuts, beets, and tomatoes in gardens at Fort Gaines, Clay County.

T. L. Bissell (June 26): Blister beetles, probably E. vittata, injuring cotton at Cuthbert on May 31. Macrobasis unicolor Kby. numerous on potatoes at Blairsville on June 19.

Kentucky. W. A. Price (June 27): Black blister beetles (E. pennsylvanica Deg.) received from Campbellsville on June 25, with statement that they were ruining potato vines.

Mississippi. C. Lyle and assistants (June 25): Reported as numerous in the southeastern part of the State; gray blister beetle (E. cinerea Forst.) present in Monroe County. Specimens of E. lemniscata F. received from Copiah, Jefferson, Lamar, Noxubee, Prentiss, and Webster Counties, and reported from Clarke County. Injured tomatoes, potatoes, soybeans, corn, and garden crops. Considerable damage reported from Monroe County and reported as abundant on cotton in Lawrence County.

Texas. R. K. Fletcher (June 21): E. lemniscata caused severe injury to tomatoes on June 6 in Van Zandt County.

Minnesota. A. G. Ruggles and assistants (June): M. unicolor very abundant on various legumes at Minneapolis.

North Dakota. F. G. Butcher (June 25): Reported abundant from nearly all sections of the State, injuries being largely confined to legumes, gardens, and ornamentals. A few cases of defoliation of potato fields noted.

Arizona. H. G. Johnston (June 20): E. pardalis Lec. widely distributed and causing serious damage to potatoes throughout Yavapai and Coconino Counties. Insects migrate into small cultivated areas surrounded by extensive rangeland.

SEED-CORN MAGGOT (Hylemya cilicrura Rond.)

Connecticut. N. Turner (June 20): Ruined 1 acre of squash at Mount Carmel. Abundant in many squash and lima-bean fields planted during rainy weather late in May.

New York. N. Y. State Coll. Agr. News Letter (June 24): In Monroe County, western New York, caused severe injury to beans planted around May 25. June 5 plantings escaped almost entirely, which is unusual. Out in large numbers and active during early part of the week. Reported as present in peafields in the Wolcott and South Butler area, Wayne County.

Indiana. J. J. Davis (June 22): Reported as infesting planted squash seed at Marion on June 3. A number of reports received from other parts of the State, chiefly central Indiana, stating that planted corn and soybean seed were attacked.

Michigan. R. Hutson (June 22): Found in sprouting corn at Centerville on May 31.

Washington. E. C. Durdle (June 9): Reported as attacking peas and causing seed losses in home gardens of the Vancouver area, Clark County.

POTATO AND TOMATO

COLORADO POTATO BEETLE (*Leptinotarsa decemlineata* Say)

New York. N. Y. State Coll. Agr. News Letter (June 10): Beetles appeared in numbers in Nassau County and started laying eggs with renewed vigor after having practically disappeared during the last week in May. Newly hatched larvae found for the first time on June 7. Adults numerous in some fields and mating and egg laying are proceeding rapidly. (June 24): Few masses of eggs still being laid in Nassau County. Hatching rate has been nearly uniform since June 15. In western New York eggs are being laid and some injury is noticed.

Delaware. L. A. Stearns (June 10): Light infestation on plantings of tomatoes made on May 9, 10, and 11 at Rising Sun, Kent County.

Virginia. H. G. Walker and L. D. Anderson (June 24): Rather abundant this spring. Caused severe damage where proper control measures were not applied.

Mississippi. C. Lyle and assistants (June 25): Reported as injuring potatoes and tomatoes in Leflore County; in large numbers on tomatoes in Pearl River County; and numerous on potatoes in the State College area.

Tennessee. G. M. Bentley (June 24): Destroyed 50 percent of the leaves of potatoes in McLemoresville, Carroll County, on May 27. No injury has been caused to potatoes on the Cumberland Plateau.

Minnesota. A. G. Peterson (June 13): Eggs abundant at Brooklyn Center, Hennepin County, on June 10, and a number were hatching.

Iowa. H. E. Jaques (June): Reported from scattered localities over the State.

Utah. G. F. Knowlton (June 13): Scarce most of the season in the infested area of Weber and northern Davis Counties.

Washington. L. G. Smith (June 19): First time ever reported in Clark County, in the locality of Sifton, near Orchards. Potatoes not damaged. (June 4): Beetles reported as doing limited damage to potatoes in the Okanogan area. Outbreaks not previously noticed in Okanogan County.

POTATO FLEA BEETLES (Epitrix spp.)

Connecticut. N. Turner (June 20): Unusually heavy spring infestation of E. cucumeris Harr. reported on potatoes and tomatoes, with serious damage to untreated plants.

Kentucky. W. A. Price (June 27): E. cucumeris abundant on potatoes in the Bluegrass area.

Minnesota. A. G. Peterson (June 13): E. cucumeris moderately abundant at Brooklyn Center, Hennepin County, and at the University Farm, in Ramsey County, on June 10.

Montana. H. B. Mills (June 19): Injury by western potato flea beetle (E. subcrinita Lec.) evident on potatoes, radishes, and beets in the vicinity of Bozeman.

Washington. H. Dodge (June 10): Potato flea beetle (Epitrix sp.) caused slight tuber injury on the west side of the Yakima River, in Kittitas County. Potato vines slightly laced.

HORNWORMS (Protoparce spp.)

South Carolina. J. G. Watts (June): By June 10, P. quinquemaculata Haw. and P. sexta Johan. were doing considerable defoliation in untreated tomatoes at Blackville. Practically absent on treated fields. The latter species was more abundant than the former. Local damage on untreated fields extensive by the end of the month.

CORN EAR WORM (Heliothis armigera Hbn.)

Georgia. T. L. Bissell (June 26): Numerous reports received from Experiment during the last week. Eggs and larvae $\frac{1}{2}$ inch in length found today, but larvae doubtless larger where fruit is larger.

Ohio. H. C. Mason (June): One egg and three small larvae found on tomatoes at South Point on June 21. Several moths and large larvae found on same date on sweet corn that was starting to tassel.

South Carolina. J. G. Watts (June): Infestation at Blackville on untreated tomatoes has increased gradually since the middle of May. On June 11 in 1 untreated field all fruits were picked that would not be marketable. Of a sample of 200 of these fruits, 76.5 percent were damaged.

Mississippi. C. Lyle and assistants. (June 25): Reported that tomatoes have been injured in Hinds, Copiah, and Lincoln Counties. Heavy damage has occurred in the Meridian area.

APHID (Macrosiphum solanifolii Ashm.)

Virginia. H. G. Walker and L. D. Anderson (June 24): Rather abundant in some fields of potatoes, tomatoes, and eggplants in the Norfolk area and on Eastern Shore of Virginia.

Louisiana. M. T. Young (May 23): Potato aphids unusually bad this spring.

A ROOT APHID (Trifidaphis phaseoli Pass.)

Virginia. F. R. Freund (June 12): Causing considerable damage in one field tomatoes and light damage in another, both in Westmoreland County. (Det. by P. W. Mason.)

POTATO LEAFHOPPER (Empoasca fabae Harr.)

New York. N. Y. State Coll. Agr. News Letter (June 3): Adults appeared on hills in Oneida County, western New York, in unusually large numbers during the second week of May. (June 10): Taken on potato for the first time on June 6, which is a rather early appearance in Nassau County, eastern New York. (June 17): Observed in field in Nassau County. Incoming migrants seems to have stopped temporarily as they are not nearly so abundant in light-trap catches as when first reported.

Louisiana. M. T. Young (May 23): Unusually bad this spring.

Iowa. H. E. Jaques (June): Reported from scattered localities throughout the southern half of the State.

Minnesota. A. A. Granovsky (June 13): First appearance noted on June 2 at Saint Paul. Reported as scarce in Brooklyn Center, Hennepin County. Not observed on June 5. On June 10 about 5 or 6 were taken from 50 sweeps of the net.

BEEF LEAFHOPPER (Eutettix tenellus Bak.)

Utah. G. F. Knowlton (June 21): Curly-top of tomatoes at Spanish Fork and Mapleton Bench ranges from 2 to 13 percent. Injury observed at Pleasant Grove and Orem. Present on beans, and curly-top is destroying some bean plants at Bluffdale and Riverton.

POTATO PSYLLID (Paratrioza cockerelli Sulc.)

Nebraska. H. D. Tate (June 18): Request for proper time to apply control measures received from Lincoln County on June 4.

A PENTATOMID (Hymenarcys nervosa Say)

Missouri. T. E. Birkett (June 16): Was doing considerable damage to Irish potato plants at Neosho. (Det. by H. G. Barber.)

BEANS

MEXICAN BEAN BEETLE (Epilachna varivestis Muls.)

Massachusetts. A. I. Bourne (June 20): Invasion of gardens and larger plantings in the Amherst section by overwintered beetles noticed during first part of week of June 9. More numerous than usual.

Connecticut. N. Turner (June 20): Abundant on garden beans and destructive in a few areas.

New York. N. Y. State Coll. Agr. News Letter (June 10): Overwintered adults observed since first of the month and are causing some injury in the lower Hudson River Valley and on Long Island. No eggs observed. In western New York the first beetles were observed on June 5 and 6.

Maryland. E. N. Cory (June 4): Present on beans at Contee.

Gertrude Myers (June 25): Moderately abundant around Rockville.

T. L. Bissell (June 26): On snap beans at Westover on June 12.

Virginia. H. G. Walker and L. D. Anderson (June 24): More abundant than usual in Norfolk and Princess Anne Counties and on the Eastern Shore of Virginia.

South Carolina. J. G. Watts (June): Doing some damage to beans at Blackville.

Georgia. D. F. Farlinger (June 14): Caused severe injury to snap and lima beans in Clay and Tift Counties.

T. L. Bissell (June 26): Quite injurious on beans at Tifton on June 24. Heavy damage to beans reported on June 25 from Blairsville, northeastern Georgia.

Florida. A. H. Madden (June 13): Reported as attacking all varieties of beans in Gadsden County. Fairly widespread throughout the county. All stages present in considerable abundance.

Alabama. J. M. Robinson (June 13): Moderately abundant at Auburn on May 15.

Mississippi. C. Lyle (June 25): Reported as present in a general heavy infestation in the Meridian area and as numerous at State College and in Calhoun County.

Louisiana. M. T. Young (May 23): Reported as covering an area near Bogalusa 10 miles square.

Tennessee. G. M. Bentley (June 24): Medium infestation generally over the State on May 26.

L. B. Scott (June 25): Normally abundant in north-central part of State. Reported as damaging beans.

Ohio. H. C. Mason (June 2): Observed feeding on beans at Columbus.

R. H. Nelson (June): Infestation light at South Point. First pupae found on June 20, indicating hatching on about June 1. Most eggs did not begin hatching until about June 15.

BEAN LEAF BEETLE (Cerotoma trifurcata Forst.)

Maryland. T. L. Bissell (June 26): Conspicuous damage noted at Westover on June 12.

South Carolina. J. G. Watts (June): Adults have been doing more damage than usual on beans and peas at Blackville. Still feeding extensively on these crops in home gardens.

Alabama. J. M. Robinson (June 13): Very abundant at Auburn on May 15.

Mississippi. C. Lyle (June 25): Reports of injury received from Sunflower County and from the Meridian area.

Louisiana. M. T. Young (May 23): More injurious than usual.

Indiana. J. J. Davis (June 22): Reported as damaging garden beans in Washington County, southern Indiana, on June 20.

Arkansas. D. Isely (June 19): Unusually abundant in the Delta counties this spring. Caused considerable damage to seedling soybeans and more than usual damage to garden beans.

Ohio. T. H. Parks (June 6): Present and feeding on garden beans in commercial gardens south of Columbus.

PEAS

PEA APHID (Macrosiphum pisi Kltb.)

New York. N. Y. State Coll. Agr. News Letter (June 10): Initial infestation of peas in Onondaga County, western New York, present in small field of peas just about to bloom. (June 17): Rather abundant in fields in the Wolcott and South Butler areas, Wayne County. (June 24): Infestations very spotted in Orleans County. Continually increasing in numbers in South Butler area.

Virginia. H. G. Walker and L. D. Anderson (June 24): Not as abundant as usual at Norfolk on alfalfa. Rather heavy infestations developed on peas late in the season, but damage was light because the crop was largely made before it was attacked.

Utah. G. F. Knowlton (June 4): Attacked early peafields at Layton and Kaysville. Less populous than a week ago in early peas examined in Weber and Davis Counties.

Washington. T. A. Knoblauch (June 10): Reported as doing serious damage to peas in the Snohomish and Monroe districts of Snohomish County. Control measures started the first week in June in many fields.

PEA WEEVIL (Bruchus pisorum L.)

Utah. G. F. Knowlton (June 4): Three pea weevils found yesterday at Kaysville and Clinton in an inspection of eight peafields in parts of Weber and Davis Counties. (June 20): Severely damaged canning peas are being condemned in the Pleasant View and Geneva areas of Utah County.

Washington. L. G. Smith (June 5): Peafield at Waverly, Spokane County, in full bloom on June 3. Some pods were beginning to form and eggs had been deposited. Population averaged from 25 to 50 per 25 sweeps around edge of field.

A WEEVIL (Sitona lineata L.)

Washington. L. G. Smith (June 5): Specimens sent for identification from San Juan County, with report that they were causing considerable damage to the foliage of field peas. Entire fields of 10 to 12 acres seemed to have 90 percent of the plants affected. Larvae found at the roots of the peas. Determined by L. L. Buchanan as the first specimens seen in the United States.

CABBAGE

CABBAGE MAGGOT (Hylemyia brassicae Bouche)

Maine. J. H. Hawkins (June 12): More abundant on early cabbage than usual at Orono, causing up to 25-percent loss.

Connecticut. A. W. Morrill, Jr. (June 22): Severe injury to onions and cabbage reported by large number of growers.

New York. N. Y. State Coll. Agr. News Letter (June 24): Infestation severe this year in cabbage-growing sections of State.

APHIDS (Aphididae)

New York. N. Y. State Coll. Agr. News Letter (June 3): Heavy infestation in three cabbage fields in Rockland County, eastern New York, from 5 to 10 percent of the plants being killed. Milder infestation seen in two fields in Columbia County a week ago.

Ohio. R. H. Nelson (June): Brevicoryne brassicae L. completely destroyed improperly treated fields of cabbage at South Point. Parasites and predators have almost eliminated the infestation now.

Indiana. J. J. Davis (June 22): B. brassicae very abundant in cabbage at Crown Point, in northwestern Indiana, on June 19. Earliest report of damage came on June 1 from Madison, on the Ohio River.

Tennessee. G. M. Bentley (June 24): B. brassicae reported as causing injury to cabbage in Carroll County on June 10.

L. B. Scott (June 24): Aphids more than normally abundant on cabbage in north-central Tennessee.

Nebraska. H. D. Tate (June 18): Request for control of cabbage aphid (B. brassicae) received from Nance County on June 6.

Utah. G. F. Knowlton and F. C. Harnston (June 4): Severely damaging cabbage at Moab.

CABBAGE CURCULIO (Ceutorhynchus rapae Gyll.)

Ohio. T. H. Parks (June 20): Cabbage plants received from Morgan County on June 1 showing punctures and carrying larvae and eggs in the stems. Reported from adjoining county 2 years ago.

MELONS

BEETLES (Blaptinus spp.)

Arizona. H. G. Johnston (June 15): Small darkling beetles causing serious damage in the Salt River Valley to cantaloups by eating off the surface netting from the rind. Injury begins when cantaloups are quite small and continues until the crop is ready for harvest, reducing considerably the market value.

GRAPE COLASPIS (Colaspis brunnea F.)

Mississippi. C. Lyle (June 25): Watermelons severely damaged in Choctaw County

CUCUMBERS

STRIPED CUCUMBER BEETLE (Diabrotica vittata F.)

Mississippi. C. Lyle (June 25): Reported as causing severe damage to cucumbers in Pearl River County, as present on cucumbers and beans in the Meridian area, and on cucumbers in Sunflower County.

SPOTTED CUCUMBER BEETLE (Diabrotica duodecimpunctata F.)

Mississippi. C. Lyle (June 25): Specimens taken from garden plants in Copiah County and from cotton in Forrest County. Reported as injuring beans and dahlias in the Meridian area, and as present on cucumbers in Sunflower County.

ASPARAGUS

ASPARAGUS BEETLES (Crioceris spp.)

Massachusetts. A. I. Bourne (June 20): C. duodecimpunctata L. and C. asparagi L. appear to be normally abundant and causing the usual damage.

Wisconsin. C. L. Fluke (June 21): Egg laying in young plants completed by June 12. Damage to seedbeds in Dane and Columbia Counties ranged from 5 to 50 percent, the early beds being most severely damaged.

SQUASH

SQUASH BUG (Anasa tristis Deg.)

New York. N. Y. State Coll. Agr. News Letter (June 24): First adult found in eastern New York on June 19 in Rockland County, and in western New York first adult seen on June 7 in Onondaga County. Few squash bugs found in Monroe County by June 17.

Mississippi. C. Lyle (June 25): Specimens received from Alcorn County on June 11, and reports of injury by this species from the Durant area and from Pearl River County.

Iowa. H. E. Jaques (June): Reported from a few scattered localities throughout the State.

Nebraska. H. D. Tate (June 18): Inquiries for control measures received from Saunders County late in May and early in June.

Oklahoma. F. A. Fenton (June 24): Reported from Salina, Oklahoma City, and Stillwater.

PICKLEWORM (Diaphania nitidalis Stoll)

South Carolina. J. G. Watts (June 25): First evidence this spring was a small larva (probably second instar) in summer straight-neck squash on June 18 at Blackville. About 75 percent of the fruits were being damaged by June 25. Larvae collected from the field on June 20 were spinning their cocoons on June 24.

Mississippi. C. Lyle (June 25): Reported as abundant on squash in Pearl River County and in the Durant area. Also reported from Oktibbeha County.

Maryland. E. N. Cory (June 3): C. asparagi present on asparagus at Silver Spring.

South Carolina. J. G. Watts (June): C. asparagi noticeably abundant at Blackville around June 1. Damage not serious on old plantings, but by June 7 some newly set fields were extensively defoliated.

Minnesota. K. A. Kirkpatrick (June 7): C. asparagi and C. duodecimpunctata moderately abundant on asparagus at Minneapolis. Reports also received from other places in Hennepin County.

Utah. G. F. Knowlton (June 13): Asparagus beetle damaged most of the asparagus raised in the infested area in northern Utah this season.

Washington. R. D. Eichmann (June 5): Second-brood adults were just beginning to appear on May 28 and 29 at Walla Walla, Sunnyside, Prosser, and Kennewick. No eggs had yet appeared. Cutting season had about ended, and damage to asparagus stalks in most localities was negligible.

ONIONS

ONION MAGGOT (Hylemyia antiqua Meig.)

Montana. H. B. Mills (June 19): Some plantings badly infested at Billings. Abundance average at Bozeman.

Utah. G. F. Knowlton (June 11): Damaging onions at Logan and Heber. (June 13): Onions being damaged at Ogden, Plain City, and Wellsville.

ONION THRIPS (Thrips tabaci Lind.)

New York. N. Y. State Coll. Agr. News Letter (June 10): Increasing in numbers and some injury is becoming evident in western Suffolk County. Eggs can now be found on set onions in Orange County, eastern New York.

Virginia. H. G. Walker and L. D. Anderson (June 24): Two weeks later than usual in the Norfolk area. Considerable damage done to late spring cabbage and onions. Rather abundant on cantaloupe early in June but seen to be disappearing now.

Egypt. A. H. Rosenfeld (May 29): Severe outbreak on onions in Upper Egypt this spring. Particularly severe in great onion center of Shandawil, near Sohag.

LETTUCE

SIX-SPOTTED LEAFHOPPER (Macrosteles divisus Uh1.)

Maryland. F. F. Smith (June 21): Adults collected in lettuce field and yellow infection first noted at Beltsville on May 22, 1939. In 1940 adults were collected and first diseased plant noted on June 19. In 1939 approximately 50 percent of the asters planted on May 24-26 were infected with yellow a month later, whereas in 1940 only 1 plant was observed to be infected on June 20 in a field planted on May 24.

SWEETPOTATO

SWEETPOTATO LEAF BEETLE (Typophorus viridicyaneus Crotch)

Mississippi. C. Lyle (June 25): Adults received from Simpson County on June 11.

TORTOISE BEETLES (Cassidinae)

Indiana. J. J. Davis (June 22): Gold tortoise beetle (Metritona bicolor F.) reported as doing considerable damage to sweetpotatoes in Wells County, in the northeastern part of the State, and as a minor pest from several places in central Indiana.

Mississippi. C. Lyle (June 25): Specimens of the mottled tortoise beetle (Chirida guttata Oliv.) sent from Lincoln County, where they were feeding on sweetpotatoes. M. bivittata Say was injuring sweetpotatoes in Jones and Lincoln Counties.

SWEETPOTATO FLEA BEETLE (Chaetocnema confinis Crotch)

Nebraska. H. D. Tate (June 18): Specimens received from Gage County on June 14 together with a sample of their injury to bindweed.

STRAWBERRY

STRAWBERRY WEEVIL (Anthonomus signatus Say).

Massachusetts. A. I. Dourne (June 20): Reported as very abundant in the Cape Cod region, where many of the large commercial plantings of strawberries are located. Considerable injury noticed, particularly in Barnstable County.

New York. N. Y. State Coll. Agr. News Letter (June 3): Growers in the Hudson Valley are having trouble treating strawberries for weevil control, because of frequent showers. This same weather condition has been responsible for less injury than normal at this stage of host development.

Delaware. L. A. Stearns (May 7): Much less abundant in Bridgeville, Sussex County, than in 1939.

Maryland. T. L. Bissell (June 26): Adults very abundant on overripe fruit, two or three per berry, on June 12 at Westover. No injury evident.

WEEVILS (Brachyrhinus spp.)

Ohio. J. S. Houser (June 14): B. sulcatus F. in the pupal or newly transformed adult stage was seen at Mansfield on several individual plants in a hedge of Taxus, which had been killed.

Utah. G. F. Knowlton and R. L. Janes (June 1): Black vine beetle (B. sulcatus) recently introduced into Utah, seriously damaging two strawberry patches on Providence Bench. A few adults and larvae, as well as numerous pupae, are present.

G. F. Knowlton (June 21): Strawberry root weevils (B. ovatus L. and B. rugosostriatus Goeze) are damaging strawberry and raspberry patches throughout Utah County. Adults abundant.

Washington. L. G. Smith (June 5): Adults of B. ovatus found on May 30 in gardens at Pullman, Whitman County. Control measures successful this year in Skamania County, where extensive damage took place last year.

STRAWBERRY LEAF ROLLER (Ancylis comptana Froel.)

Indiana. J. J. Davis (June 22): Very abundant in a strawberry field at Warsaw, northern Indiana, on June 14.

Wisconsin. C. L. Fluke (June 21): Prevalent in larger numbers this year than last, in Dane and Rock Counties.

Nebraska. H. D. Tate (June 18): Reports of damage to strawberry plants received from Grant and Buffalo Counties on June 13 and 15, respectively.

STRAWBERRY SLUGS (Empria spp.)

Wisconsin. C. L. Fluke (June 21): Severely damaging strawberries in Trempealeau and Price Counties. Species not determined.

Minnesota. A. G. Ruggles and assistants (June): E. fragariae Rohw. very abundant on strawberries at Saint Cloud and New Brighton.

CYCLAMEN MITE (Tarsonemus pallidus Banks)

New York. N. Y. State Coll. Agr. News Letter (June 3): Many strawberry plants in western Suffolk County show injury. (June 17): Moderate injury found in part of a strawberry planting in Orange County.

RED SPIDERS (Tetranychus spp.)

Virginia. H. G. Walker and L. D. Anderson (June 24): Very abundant in some strawberry fields early in the season at Norfolk. Owing to weather conditions, not nearly so much damage occurred as was expected.

TOBACCO

TOBACCO FLEA BEETLE (Epitrix parvula F.)

Florida. F. S. Chamberlin (June 5): Continues to be unusually scarce in the tobacco-producing region of Gadsden County.

Tennessee. L. B. Scott (June 25): Moderately abundant in north-central Tennessee. Very little damage.

TOBACCO THRIPS (Frankliniella fusca Hinds)

Connecticut. A. W. Morrill, Jr. (June 22): Fewer in numbers on tobacco plants than usual.

SOUTHERN GREEN STINKBUG (Nezara viridula L.)

Florida. F. S. Chamberlin (June 14): Causing some injury to sun-grown tobacco in Gadsden County.

A CHIRONOMID (Orthocladius nigritus Mall.)

Maryland. C. Graham (June): Present on tobacco beds at La Plata. (Det. by C. T. Greene.)

SEED-CORN MAGGOT (Hylemya cilicrura Rond.)

Connecticut. A. W. Morrill, Jr. (June 22): Severe damage reported in spots by some tobacco growers. Not widespread.

TOBACCO BUDWORM (Heliothis virescens F.)

Florida. F. S. Chamberlin (June 26): More abundant than usual in tobacco in Gadsden County.

HORNWORMS (Protoparce spp.)

Tennessee. L. B. Scott (June 25): First eggs in north-central Tennessee were found on June 9. Larvae now normally abundant. Very little damage to tobacco.

CORN ROOT WEBWORM (Crambus caliginosellus Clem.)

Tennessee. L. B. Scott (June 25): Less than normally abundant in tobacco fields in north-central Tennessee, and damage only moderate. A 50-acre field of corn in Cheatham County very severely damaged.

SPRINGTAILS (Collembola)

Tennessee. L. B. Scott (June 25): Undetermined species caused moderate damage to tobacco in several plant beds in north-central Tennessee. In several instances infestation has spread to field tobacco.

C O T T O N I N S E C T S

BOLL WEEVIL (Anthonomus grandis Boh.)

South Carolina. F. F. Bondy and C. F. Rainwater (June 15): Still few in number in Florence County. Four taken from the hibernation cages, 28 from the trap crop, and 1 from the screen traps this week. A total of 63,600 plants was examined in Marion, Florence, and Calhoun Counties on 42 farms, and only 65 weevils found, averaging 1 per 978 plants, as compared to an average of 1 per 893 plants last week.

J. G. Watts (June 25): Activity on cotton at Blackville is relatively unimportant.

Georgia. P. M. Gilmer, et al. (June 8): Now appearing in fair numbers in favorably located fields, near good hibernation quarters, in Tift, Berrien, Cook, Lowndes, and Echols Counties. The most heavily infested point was near Enigma, Berrien County, where, in crossing an 8-acre field, 8 weevils

were taken without search. Average was less than 1 weevil per 1,500 plants. No infestation at all at many points, such as in Echols County and in 2 fields in southern Berrien County. Infestation undoubtedly very light, although weather conditions have been ideal for weevils. (June 15): Numbers have increased during the last week in the field in Tift, Cook, and Berrien Counties. Two out of 7 fields were found with infestations of approximately 4 percent. The rest ranged from below 1 percent to no injury nor weevils found. General infestation still very light. Weevils are considerably more abundant than previously, although still relatively few in numbers, as compared with normal years. (June 22): Over most of Tift and Berrien Counties weevils are apparently about at the peak. Infestation exceedingly spotted, ranging from 2 to 11 percent and averaging between 4 and 6 percent. Some lessening in numbers of fresh punctures during the last days of the week.

Florida. C. S. Rude, et al. (June 15): Conditions better than for the same period in either 1938 or 1939. Fifteen fields examined in Lake County 3 being infested from 6.2 to 13.6 percent; 17 fields examined in Alachua County, of which 9 were infested from 0.2 to 24.8 percent; 11 fields examined in Marion County, 7 of which were infested from 0.4 to 2.6 percent; and 15 fields inspected in Gilchrist County showed 8 infested from 0.2 to 2.0 percent. Total of 21 weevils removed last week and 5 this week from hibernation cages at McIntosh, Marion County, and 22 last week and 16 this week from cages at Fruitland Park, Lake County. (June 22) Four fields examined in Union County, of which 2 were infested from 0 to 1.2 percent; 15 fields in Alachua County showed 9 infested from 0 to 29 percent; 13 fields in Gilchrist County showed 4 infested from 0 to .2 percent; 11 fields in Marion County showed 7 infested from 0 to 2.4 percent; and 16 fields in Lake County showed 5 infested from 0 to 14.4 percent. Average infestation in all fields was 1.7 percent, as compared to an average of 21.7 percent for the week ended June 24, 1939, and 29 percent for the week ended June 25, 1938.

Mississippi. C. Lyle (June 25): Received from Forrest County on June 12. few found in Holmes and Sunflower Counties; a light infestation reported from the Meridian area; and light damage reported from the southwestern part of the State. Generally there seems to be about one-tenth the number present at this time in 1939, almost no weevils occurring in the northern third of the State.

Louisiana. R. C. Gaines and assistants (June 15): During the period June 7 to 13 in Madison Parish, 201 weevils were found on 78,000 plants, averaging 1 per 388 plants, as compared with 439 weevils on 59,000 plants, or 1 per 134 plants, during the same period in 1939, and 287 weevils on 48,000 plants, or 1 per 167 plants in 1938. One taken on the field flight screen during the week. (June 22): Punctured squares observed in a few fields near timber. Five taken on field flight screens for the week.

Texas. F. L. Thomas (June 25): First generation now emerging in the vicinity of College Station, and infestation averaging 32 percent found in four fields near woodlands. Six fields in the vicinity of Waco had an average of 21 percent of the squares punctured.

K. P. Ewing, et al. (June 22): Three removed from the hibernation cages in McLennan County during the period June 17 to 22, inclusive. Emergence to date amounts to 32 weevils, or 0.0914 percent. Most of the weevils are now in squares. During the week 1,600 squares in 6 fields showed an average of 20.95 percent of punctured squares. The range was from 9 to 48 percent.

C. R. Parencia, et al. (June 22): Only a very few weevils or punctured squares found in Calhoun County. Counts made on the variety tests on June 19 showed less than 1 percent of the squares punctured.

A WEEVIL (Compsus auricephalus Say)

Louisiana. C. O. Eddy (June 11): Taken commonly on cotton in the Shreveport area and less frequently in the Alexandria area. (Det. by L. L. Buchanan.)

BEEET ARMYWORM (Laphygma exigua Hbn.)

Arizona. W. A. Stevenson (June 8): First reports of damage to young cotton in Pima County received during the first part of the week from Marana. Approximately 80 acres found infested to the extent that immediate control measures were used. A few of the larvae found feeding on the leaves of larger cotton, but damage was not sufficient to justify control measures. (June 15): Infestation practically cleared up at Marana by the end of the week. An occasional larva could be found.

PINK BOLLWORM (Pectinophora gossypiella Saund.)

Texas. H. S. Cavitt (June 22): Bloom examinations made at Loma Palona, Presidio County, on June 20 showed 6 out of 1,000 blooms to be infested. Only 3 moths emerged from the hibernation experiment during the week.

BOLLWORM (Heliothis armigera Hbn.)

South Carolina. F. F. Bondy and C. F. Rainwater (June 22): A few found in the buds of young cotton plants in Florence County.

Georgia. P. M. Gilmer, et al. (June 15): A few taken boring into small squares in Tift, Cook, and Berrien Counties. No serious damage, although these larvae are earlier than normal in cotton.

Florida. C. S. Rude, et al. (June 22): A few seen in the cotton-growing area of Florida.

COTTON LEAF WORM (Alabama argillacea Hbn.)

Florida. C. S. Rude, et al. (June 22): Mature larvae and pupae collected in a field near Trenton, Gilchrist County, where they were observed feeding. (Det. by C. Heinrich.)

Texas. F. L. Thomas (June 11): First larvae found in Texas this season were taken at Brownsville on May 27. (June 25): Leaf worms have appeared in San Patricio County, just north of Corpus Christi.

SALT-MARSH CATERPILLAR (Estigmene acraea Drury)

Arkansas. D. Isely (June 19): Local damage to cotton caused in a number of counties along the southern border of the State.

Texas. C. R. Parencia, et al. (June 22): A generation of larvae nearly ready to pupate in Calhoun County. Infestation scattered over most of the county and severe ragging observed in a few fields. One field had about 50 acres damaged, adjoining flax, from which the larvae migrated in large numbers. They were moving in a body. In one section of a row $3\frac{1}{2}$ feet long, 410 larvae were found.

SEED-CORN MAGGOT (Hylemya cilicrura Rond.)

Arizona. T. P. Cassidy (May 21): Only insect injury observed in cotton during April was an unusual case of injury to newly germinated cotton seedlings on a farm 2 miles south of Mesa. In two fields comprising 25 acres, the stand was so impaired as to necessitate replanting. In each case the cotton had been planted immediately after plowing out alfalfa. Occasional alfalfa sprouts scattered over the field showed similar underground damage. (Det. by H. G. Johnston.)

COTTON FLEA HOPPER (Psallus seriatus Reut.)

Mississippi. C. A. Wilson, et al. (June 22): Infestation in Oktibbeha and Lowndes Counties very low, inspection of 12,800 terminal buds in 42 fields yielding an average of 1.8 adults and 0.09 nymph per 100 buds, as compared with an average of 1.64 adults and 1.22 nymphs per 100 buds in examination of 3,600 terminal buds in 15 fields at this time last year. Highest number of adults in any one field was 24 on 600 terminal buds. One field in western Oktibbeha County found to show evidence of damage to the small squares.

Texas. F. L. Thomas (June 4): More damage expected in southern Texas than in 1939, although present indications are that damage will be below average in that area. Numbers more than doubled in a few fields since last week and now approaching abundance sufficient to cause damage, serious damage having already occurred in one field, as reported from Port Lavaca. Slightly increasing in Wharton County. Present in small numbers in central Texas

C. R. Parencia (June 15): Total of 2,400 terminal buds inspected in 6 fields in Calhoun County. Average of 5.34 adults and 11.86 nymphs found per 100 terminal buds, as compared with 4.44 adults and 12.62 nymphs last week. Young nymphs were appearing in fields examined late in the week. In the variety tests on June 11 a total of 86.5 flea hoppers per 100 terminal buds was found on 1,600 plants on the check plats and a total of 60.5 per 100 terminal buds on 1,600 plants in the treated plats.

K. P. Ewing, et al. (June 22): No nymphs emerged in hibernation cages in McLennan County during the week. In 31 fields 12,700 terminal buds showed an average per field of 4.29 adults and 0.94 nymph per 100 terminal buds. Adult infestation almost doubled that of last week, which average

2.54 adults.

H. S. Cavitt (June 22): A rather heavy infestation was observed on June 20 at Loma Palona, Presidio County.

Arizona. T. P. Cassidy (May 21): Small croton plants at Tucson were practically all infested with all stages.

TARNISHED PLANT BUG (*Lygus pratensis oblineatus* Say)

Mississippi. C. A. Wilson, et al. (June 22): Adults observed as numerous on cotton inspected in Oktibbeha and Lowndes Counties, a few being found in almost every field examined.

E. W. Dunnan, et al. (June 22): Light damage in two fields in Washington County.

Louisiana. R. C. Gaines and assistants (June 15): Adults of this species and of Adelphocoris rapidus Say found in practically all fields in Madison Parish. The former is the more numerous. Some damage caused.

APHIDS (Aphidae)

South Carolina. F. F. Bondy and C. F. Rainwater (June 8): Leaf aphids unusually abundant and have done lots of damage to seedling cotton in Florence County. Root aphids present in large numbers, having done serious damage in some fields.

J. G. Watts (June): Severe damage to young cotton general over a number of Coastal Plains counties late in May and during the first 10 days of June, as follows: Barnwell, Orangeburg, Sumter, Lee, Florence, Dillon, and Marion. Plants were recovering by June 11, although infestation was still noticeable. By June 20 infestation had practically disappeared.

Georgia. F. M. Gilmer, et al. (June 1): Now well under control by natural agencies. Still present in much reduced numbers in most fields in Tift, Berrien, Cook, Lowndes, and Echols Counties.

Florida. C. S. Rude, et al. (June 22): A few found in some fields, but not numerous enough to cause damage.

Mississippi. C. Lyle (June 25): Cotton reported as infested by Aphis gossypii Glov. in the Durant and Jackson areas, and numerous reports received from the southwestern part of the State. Heavy infestations reported from Pearl River County, from the Meridian area, and from the northeastern part of the State. Infestation said to be diminishing in the southeastern part of Mississippi and in the State College section. The northeastern section had the heaviest early infestation ever observed by the inspector in that area. Ladybeetles very abundant.

C. A. Wilson (June 8): Very numerous on all of the cotton examined this week in Oktibbeha and Lowndes Counties. Appreciable damage to small cotton everywhere. Coccinellid adults and larvae observed feeding voraciously.

J. C. Clark, et al. (June 8): Examination of 600 plants in the 8-leaf stage in Washington County yielded 3,115 aphids on 511 plants, a decrease from last week.

Louisiana. R. C. Gaines and assistants (June 8): Not very numerous in Madison Parish, except on some fields of young cotton. Ladybeetles and parasites are giving excellent control.

Texas. K. P. Ewing, et al. (June 8): In the black-land section at Riesel, McLennan County, 3,600 leaves were inspected in 18 cottonfields on June 8. Average number per square inch was 0.51. Light infestation found throughout the Waco area, but practically no damage. (June 15): Infestation in McLennan County decreased this week, and no particular damage is being noted in this area now.

A MEALYBUG (Pseudococcus sp.)

South Carolina. C. F. Rainwater (May 24): Collected from roots of a plant near St. Matthews on April 3, attended by ants (Lasius sp.); collected from cotton roots at Florence on April 18 and near Orangeburg on May 1; collected on nutgrass roots in the same field near Orangeburg on May 1. In almost every instance where mealybugs were found on cotton, soybeans were the preceding crop. (Det. by H. Morrison as Pseudococcus sp., related maritimus Ehrh., but distinct.)

THRIPS (Thysanoptera)

South Carolina. F. F. Bondy and C. F. Rainwater (June 22): Some seen on cotton in Florence County, but little or no damage done.

Mississippi. E. W. Dunnam, et al. (June 22): Damage can be seen in late and replanted cotton in Washington County.

Louisiana. R. C. Gaines and assistants (June 8): Damage in Madison Parish appears to be heaviest in the last cotton planted. (June 22): Some fields of young cotton still being damaged.

Texas. F. L. Thomas (June 11): Damage unusually abundant, and apparently some shedding of small squares has been caused.

K. P. Ewing, et al. (June 8): Many fields damaged in the Waco area of McLennan County. Numerous complaints received, and much damage observed (June 15): Damage in the Waco area still reported by many growers. Severe damage reported from the eastern part of Coryell County, many plants being killed.

RED SPIDERS (Tetranychus sp.)

Louisiana. M. T. Young (May 23): Severe infestation on young cotton reported from near Baton Rouge.

F O R E S T A N D S H A D E - T R E E I N S E C T S

PERIODICAL CICADA (Magicicada septendecim L.)

Massachusetts. A. I. Bourne (June 20): Reported from East Falmouth on June 14 and since that time from Plymouth. Present in large numbers. (June 28): Reported that an adult was observed in a cellar at Osterville on May 11. It is believed that the cicada emerged from the dirt floor. Large numbers collected in the vicinity of Falmouth around the middle of May. Both localities are in Barnstable County.

E. P. Felt (July 1): Reported and observed as occurring in numbers in all the Falmouths, Wianno, Sandwich, and Cotuit, Barnstable County, and at Plymouth.

New York. R. W. Leiby (June 12): Reported as abundant at Saint James, on Long Island.

E. P. Felt (June 25): Colonies found at Cold Spring Harbor and also at Bethpage State Park, both on Long Island.

Mrs. L. Johnson (June): Reported as very abundant in Wyandanch and vicinity on Long Island. Pine, scrub-oak, and maple trees literally covered.

N. Y. State Coll. Agr. News Letter (June): Swarms first appeared at Huntington Road on Long Island on June 4. Since then numerous swarms reported from all around Huntington, Deer Park, and Farmingdale, as well as being found on the Institute grounds. Appeared in enormous numbers during the week of June 10 in a large wooded area 2 miles east of Hicksville and just north of Bethpage. Very numerous in woods northeast of Eastport. Exceedingly numerous in woods south of Jericho Turnpike, at Commack. Numerous about 1 mile east of East Northport, and in woods in Half Hollow Hills, Huntington. Presence reported in several other parts of Long Island.

New Jersey. F. A. Soraci (June 18): No signs of Brood XIV at any point in New Jersey.

Pennsylvania. G. B. Slesman (June 16): Very heavy infestation reported along the William Penn Highway, Huntington County. Quite a few empty pupal cases in woods surrounding Bridgeport, but adults not very plentiful. As only a few adults were found in the vicinity of Sellersville, Bucks County, they were evidently just emerging in this area. Light infestation indicated in the Quakertown area of Bucks County. Several woods scouted in the Bryn Mawr area of Montgomery County, but no evidence of periodical cicada found. Several woods scouted in the Pleasant Valley area of Bucks County, and a few found there, as well as in a wood several miles from Pleasant Valley.

W. R. Walton (June 20): Observed in numbers on June 7 on the South Mountain near Caledonia, Franklin County.

C. A. Thomas (June 24): Found in Chester County as follows: Fairly common south of Parkesburg; very noisy and abundant on June 13 south of Compass; scarce on hills on the south side of Coatesville; very common and

noisy in woods just south and southwest, as well as in scattered woods north of Brandywine; found in small colonies near Downingtown; and a few in small woods along south border of Elverson. Found in small scattered colonies on ridges and common along the Welsh Mountains south of Birdstown, Berks County.

Maryland. E. N. Cory (May 15): Numerous in Washington County and at the junction of Washington and Allegany Counties. Considerable damage done to peach and apple orchards on Sidling Hill, and a less amount of damage on Tonoloway Hill, Washington County.

J. A. Hyslop (June 6): A single nymph found on a porch at Avenel, near Silver Spring, Montgomery County.

W. R. Walton (June 20): Numbers observed and heard singing in the woods at the foot of Catoctin Mountain, at a point 3 miles west of Lewistown, Frederick County.

F. F. Smith (June 21): Song heard occasionally at Beltsville and in Woodside Park early in June.

Virginia. A. M. Woodside (May): A few present in many localities in Augusta County late in May. Observed at Staunton, Waynesboro, Churchville, and Stuarts Draft, and heard at other places. Observed in very small numbers at Timberville, in Rockingham County, and at Crozet, in Albemarle County.

H. V. Wester (June 6): Collected on a farm at El-Nido, 1 mile east of McLean, Fairfax County.

W. S. Hough (June 15): Noted in apple orchards in Shenandoah, Frederick, and Clarke Counties, particularly near Gore, Frederick County, where they were observed in large numbers.

W. L. McAtee (June 20): A few heard singing on June 9 at a point about $1\frac{1}{2}$ miles west of Vienna, Fairfax County.

West Virginia. W. S. Hough (June 15): Large numbers have appeared in a young apple orchard at Glengary, Berkeley County.

North Carolina. B. H. Wilford (June 15): Reported as present in northwestern part of Burke County and on the Yancey-Madison County line.

Ohio. R. H. Nelson (June): Noted at the following localities in Lawrence County along the Ohio River: Chesapeake, Sybene, Burlington, North Kenova, South Point, Coal Grove, and Ironton, and along the highway from Ironton to Coal Hill, in Jackson County. Noted that along the Ohio River from Sybene to South Point no cicadas had emerged from the areas deeply flooded in 1921, although, according to report, there was much evidence of egg laying in these areas in 1923. A few were observed to have emerged in areas reached by the crest of the flood but not submerged for the length of time that lower areas were.

J. N. Knull (June): A few adults present 10 miles north of Columbus. One nymphal skin found on June 3 at Clifton, Greene County.

J. S. Houser (June 22): Adults were emerging in abundance on May 22 in the Shawnee Forest, 15 miles northwest of Portsmouth. Reported that first adults were observed 8 miles north of Ripley on June 3, and at a point 4 miles farther south on May 30, and that the brood this year is double the size of the one in 1923. Other reports indicate the brood to be very heavy in southern Ohio.

N. F. Howard (June 24): Present in a young orchard near Chillicothe.

Indiana. J. J. Davis (June 22): Reported as abundant in Brown, Lawrence, and several other counties in the southern half of the State, and as far north as La Fayette, Tippecanoe County.

L. F. Steiner (June 20): Neither observed nor reported in the Vincennes area.

C. O. Mohr (June 24): Recorded near Madison between June 11 and 15.

Kentucky. W. A. Price (June 27): Heavy flights occurred over a large part of eastern and central Kentucky.

Mrs. G. E. Chapman (June 19): Found in the Louisa section of Lawrence County, in the eastern part of the State.

C. O. Mohr (June 24): Recorded between June 11 and 15 within 5 miles of the following localities: Milton, Campbellsburg, New Castle, Shelbyville, Peytonia, Alton, Lawrenceburg, McAfee, Cumberland Falls State Park, Williamsburg, Pineville, and Middlesboro.

Tennessee. G. M. Bentley (June 24): Reported and observed in the following counties: Anderson, Campbell, Coffee, Cumberland, De Kalb, Franklin, Robertson, and Warren.

C. O. Mohr (June 24): Recorded between June 11 and 15 near the following localities: Maynardville, Knoxville, Townsend, and Cookeville.

W. F. Turner (May 20): Taken in a peach orchard in Roane County.
(Det. by P. W. Oman.) (June 17): Observed on oaks along U. S. Highway No. 27, from Sale Creek, Hamilton County, to the Rhea County line.

A. C. Cole, Jr. (May 20): Extremely abundant on trees over a large area of Dupont Mountain, Chilhowee Range, near Maryville.

J. A. Hyslop (June 4): Numerous and singing in an oak and beech grove at Bristol, Sullivan County.

L. B. Scott (June 25): The periodical cicada has not appeared in the vicinity of Clarksville, Montgomery County, north-central Tennessee. Reported from Springfield, Robertson County.

CANKERWORMS (Geometridae)

- New York. M. D. Leonard (June 29): Very few feeding on many trees observed in Flushing.
- New Jersey. M. D. Leonard (June 27): Feeding has been very light on oaks this season in Ridgewood.
- Pennsylvania. G. B. Slesman (June 4): Spring cankerworm (Paleacrita vernat Peck) found feeding on American elm near Ambler. Estimated that 150 large elms were completely defoliated. Maple and oak also heavily infested. No serious damage found in any other part of this area.
- Ohio. J. S. Houser (June): The defoliation of woodlands, ornamental trees, and untreated orchards has been more general than for many years. The fall cankerworm (Alsophila ponotaria Harr.) predominates.
- J. N. Knull (June 4): Very abundant in vicinity of Clifton, Greene County. Oak, basswood, ash, elm, apple, and maple are the trees most severely defoliated. Calosoma wilcoxi Lec. is present in large numbers (June 16): Severe defoliation of elm, oak, and apple west of Springfield, Clark County.
- N. F. Howard (June): Infestation at Columbus is apparently destructive only near the rivers.
- E. W. Mendenhall (June 20): P. vernata appeared again in Franklin, Howard, and Madison Counties, principally on apple and elm trees which they are defoliating considerably.
- Indiana. J. J. Davis (June 22): Cankerworms, principally P. vernata, have defoliated many trees, especially elm and apple, in northeastern Indiana. In this area the cankerworm has been prevalent for the last 5 or 6 years, and many trees are dying as the result of repeated defoliation. The infestation, which has centered in northeastern Indiana, has been working southward and now occurs as far south and west as La Fayette.
- Illinois. W. P. Flint (June 19): Spring cankerworm damage severe throughout the northern two-thirds of the State. Damage occurred in spotted areas, mainly along streams where elms are most abundant.
- Kentucky. W. A. Price (June 27): Spring cankerworms were very abundant in some sections of the inner bluegrass region of Kentucky late in May and completely stripped many oak, elm, hackberry, and other shade trees.
- Michigan. R. Hutson (June 22): Fall cankerworms $\frac{1}{4}$ inch long, were working on elm at East Lansing. By June 20 they had practically completed their activities.
- Wisconsin. C. L. Fluke (June 21): Both species present and stripping elm trees in Green, Juneau, Sauk, Marquette, and Richland Counties.
- Iowa. H. E. Jaques (June): Spring cankerworms moderately abundant in many counties in the southern half of the State.

North Dakota. F. G. Butcher (June 25): P. vernata observed causing serious defoliation in parks in the eastern part of the State and in the Minot area. Heavy parasitization of the larvae in the Sand Hills Park near Sheldon has materially reduced the population during the last week.

Nebraska. H. D. Tate (June 18): P. vernata found defoliating elms in Redwillow County on June 5.

FOREST TENT CATERPILLAR (Malacosoma disstria Hbn.)

New York. N. Y. State Coll. Agr. News Letter (June 3): Observed in scattered areas in Westchester County, eastern New York. Attacking shade trees, particularly maples and elms.

Pennsylvania. C. L. Griswold (June 16): Severe defoliation of forest trees in sections between Milford and Lake Wallenpaupack and Stroudsburg, in Pike and Monroe Counties. Larvae in last feeding instar.

Ohio. E. W. Mendenhall (June 20): Found damaging hard maples in Franklin County.

Michigan. R. Hutson (June 22): Specimens about one-third grown collected in orchard near East Lansing. It is unusual to find this species in this section of the country. It is becoming abundant in the northern and eastern counties of the State. Material examined has been heavily parasitized.

North Dakota. J. A. Munro (June 1): Reported as abundant over the area north of Towner extending practically to the Canadian border. Larvae small.

Tennessee. G. M. Bentley (June 24): Very few in the State this year.

FALL WEBWORM (Hyphantria cunea Drury)

Virginia. C. O. Bare (June 17): Nearly one-half of the linden, maple, and elm trees in the vicinity of Richmond infested.

C. R. Willey (June 12): As abundant as usual in eastern Virginia.

A. M. Woodside (June 24): Fairly common, but not abundant on plum and other fruits at Staunton, Augusta County.

Tennessee. G. M. Bentley (June 17): Abundant in Knox County.

BROWN-TAIL MOTH (Nyctia phaeorrhoea Donovan.)

Maine. F. H. Lathrop (June 14): Heavy outbreak observed in neglected apple orchard near Monmouth, Kennebec County, where several large trees had been defoliated. Similar outbreak reported from Litchfield. This is the most severe infestation observed in the State in recent years.

BIRCH

APHIDS (Aphidae)

Virginia. L. G. Baumhofer (June 7): Calaphis betulella Walsh and Hamamelis
spinosus Shim. found on small white birch trees at Arlington. Leaves
distorted by H. spinosus. (Det. by P. W. Mason.)

BRONZED BIRCH BORER (Agrilus anxius Gory)

General. E. P. Felt (June 25): Injuring various species of birch here and
there in an area within 50 miles of New York City.

A BIRCH LEAF MINER (Fenusa pumila Klug)

Connecticut. P. Wallace (June 17): Severe injury to gray birch observed throug
out Fairfield County, along Merritt Parkway, and reported as abundant
throughout the State.

CHOKECHERRY

CHOKECHERRY MIDGE (Contarinia virginianiae Felt)

Nebraska. H. D. Tate (June 18): Chokecherry fruits heavily infested were sat
in from Douglas County on June 11.

UGLY-NEST CATERPILLAR (Cacoecia cerasivorana Fitch)

Connecticut. P. Wallace (June 10): Abundant on chokecherry at Cheshire, Ne
Haven County.

CYPRESS

A BUDMOTH (Recurvaria variella Chamb.)

Ohio. J. S. Houser (June 22): Bald cypress caterpillar seriously damaged bid
cypress at Oxford and Wooster in 1939 and, in addition to these localities
was found in Cincinnati this year, the damage being more severe than 1st
year.

ELM

ELM LEAF BEETLE (Galerucella xanthomelaena Schr.)

Massachusetts. J. V. Schaffner, Jr. (June 14): Adults were reported as abunant
in a house in Ipswich on May 21.

K. K. Stimson (May 28): Noticed in house for first time in Hamilton on
May 17. (Det. by H. S. Barber.)

Connecticut. J. V. Schaffner, Jr. (June 14): Adults reported as abundant in house at Ansonia. Also observed feeding on freshly opened leaves of elm nearby.

New Jersey. C. L. Griswold (June 6): Adults first observed feeding on elm leaves in Morristown vicinity on May 12. In one locality on May 27 the adult population feeding on leaves was large, and many leaves were lacelike in appearance. First egg deposition of season noted on May 27. Hatching has not occurred.

Pennsylvania. T. L. Guyton (June 27): Causing browning of foliage of Chinese elm at Marietta.

Virginia. C. O. Baro (June 17): Generally present on elm trees at Richmond. Foliage on some trees severely injured.

SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus Marsham)

Connecticut. P. Wallace (June 12): More abundant than previously in Fairfield and New Haven Counties. Egg tunnels with 60 eggs and larval tunnels 3 mm. long noted in Greenwich at this time.

ELM FLEA BEETLE (Altica ulmi Woods)

Connecticut. P. Wallace (June 15): Adults feeding on elm, apple, and pear at Hamden and Cheshire. Much more abundant than usual.

MOURNING-CLOAK BUTTERFLY (Hamadryas antiopa L.)

Ohio. E. W. Mendenhall (June 20): Spiny elm caterpillar found damaging elms in Franklin County.

Minnesota. A. G. Ruggles and assistants (June): Moderately abundant on elm at St. Paul and Minneapolis.

Tah. G. F. Knowlton (June 18): Partially defoliating several elms at Richmond.

APHIDS (Eriosoma spp.)

New York. M. D. Leonard (June 29): Very light infestation by E. americana on elms in one section of the World's Fair grounds. Several curled leaves on one tree early in the month.

Minnesota. A. G. Ruggles and assistants (June): E. lanigerum Hausm. moderately abundant in St. Paul, especially on elm.

Tah. G. F. Knowlton and G. S. Stains (May 31): Aphids, E. americanum Riley, have seriously curled elm leaves at Richmond.

Montana. H. B. Mills (June 19): E. americanum found on elm in vicinities of Bozeman, Dillon, and Big Timber. More apparent than in the last month.

ELM COCKSCOMB GALL (Colopha ulmicola Fitch)

Michigan. R. Hutson (June 22): Received from Grand Rapids, Centerville, East Lansing, and Northville.

Minnesota. A. G. Ruggles and assistants (June): Abundant on elm at St. Paul.

EUROPEAN ELM SCALE (Gossyparia spuria Mod.)

New York. R. E. Horsey (June): Numerous specimens noted on Huntingdon and Scotch elms at Rochester on June 18.

Nebraska. H. D. Tate (June 18): Complaints on May 29 and June 11 from Cheyenne County of this scale attacking elms.

Utah. G. F. Knowlton and F. C. Harnston (June 14): Damaging elms at Beaver, Milford, and Logan. Some young trees seriously affected.

FIR

AN APHID (Minderus abietinus Koch)

Pennsylvania. G. B. Sleesman (June 11): Heavy infestation noted on Nordmann fir in the Philadelphia area. Winged adults taken from a heavy infestation on Abies concolor nearby. About 2 to 3 weeks were spent on the new growth of A. concolor, then the winged adults left the fir for some other host plant.

GROUNDSELBUSH

A LEAF BEETLE (Trirhabda bacharadis Web.)

Virginia. L. A. Hetrick (June 24): Full-grown larvae found feeding on foliage of gall-bushes on edges of marshes at West Point on May 26. On June 1 the larvae entered the soil, and on June 24 adults were emerging. (Det. by H. S. Barber.)

HICKORY

HICKORY PHYLLOXERA (Phylloxera caryaecaulis Fitch)

Connecticut. E. P. Felt (June 25): Sufficiently abundant at Bristol to cause considerable dropping of hickory leaves on many trees.

New York. R. E. Horsey (June): Very numerous on a large native hickory at Rochester on June 18.

LARCH

WOOLLY LARCH APHID (Chermes strobilobius Kltb.)

Pennsylvania. J. S. Pinckney (June 18): Heavily infesting lower half of larch trees at Mt. Holly Springs.

LARCH SAWFLY (Lygaconematus orichsonii Htg.)

Pennsylvania. J. S. Pinckney (June 18): Entire larch tree infested at Mt. Holly Springs.

MAPLE

WOOLLY ALDER APHID (Prociphilus tessellatus Fitch)

Connecticut. E. P. Felt (June 25): Alder blight aphid locally abundant in the Stanford area.

Maryland. E. N. Cory (June 4): Heavy infestation in St. Marys County.

Mississippi. C. Lyle (June 25): Specimens received from Lee County, where they were feeding on maple.

NORWAY MAPLE APHID (Periphyllus lyropictus Kess.)

Indiana. L. F. Steiner (June 24): Very abundant on maples in southwestern Indiana.

COTTONY MAPLE SCALE (Pulvinaria vitis L.)

Tennessee. G. M. Bentley (June 11): Causing injury to maples in Knox, Henry, and Cocke Counties.

Utah. G. F. Knowlton (June 7): Heavily attacking twigs of maple in Heber.

MAPLE NEPTICULA (Nepticula sericopeza Zell.)

Ohio. J. S. Houser (June 6): Leaf-stalk borer occurs on Norway maples over a range at least 6 miles in diameter and is causing notable leaf losses at Youngstown.

MAPLE LEAF STEM BORER (Priophorus acericaulis MacG.)

Connecticut. P. Wallace and B. H. Walden (June 4): Ground covered with leaves under two maples. One-third of leaves on those two trees browned.

MAPLE LEAF SPOT (Cecidomyia ocellaris O. S.)

Connecticut. E. P. Felt (June 25): Very abundant locally on red maple.

BLADDER MAPLE GALL (Phyllocoptes quadripes Shin.)

General. J. V. Schaffner, Jr. (June 14): Number of specimens and inquiries regarding control measures, received in June from eastern Massachusetts and the vicinity of New York City, indicate that this pest is very prevalent in those areas.

Michigan. R. Hutson (June 22): Reported from counties in the southeastern part of the State.

Ohio. T. H. Parks (June 20): Very abundant on leaves of some maple trees all received from widely separated localities in Ohio.

OAK

AN OAK LEAF ROLLER (Argyrotoxa semipurpurana Kearf.)

New Jersey. C. W. Collins and assistants (June 6): Noticeable defoliation of pin oaks now evident in the vicinity of Morristown. Insect caused similar injury in same general areas in 1938 and 1939.

PINE

EUROPEAN PINE SHOOT MOTH (Rhyacionia buoliana Schiff.)

Connecticut and New York. E. P. Felt (June 25): Becoming abundant and injurious in southwestern Connecticut and southeastern New York.

Michigan. R. Hutson (June 22): Larvae about two-thirds grown received from Lansing on May 31. Other larvae received from Marshall, Plymouth, Royal Oak, Detroit, and Cohoctah were practically full grown on June 20.

NANTUCKET PINE SHOOT MOTH (Rhyacionia frustrana Comst.)

Virginia. L. A. Hetrick (June 24): Most of the first generation had emerged in New Kent County by June 19. The first generation was still in the larval stage in Mathews County on June 21.

A PINE NEEDLE MINER (Exoteleia pinifoliella Chamb.)

Massachusetts. H. A. Boss et al. (June 24): Pitch pine needle miner abundant this year in the vicinity of Westfield. In a number of places several trees were conspicuously affected. A 2-acre grove had a distinct brownish appearance.

J. V. Schaffner, Jr. (June 24): Observed as abundant in vicinity of Sudbury during May.

ZIMMERMAN'S PINE TIP MOTH (Pinipestis zimmermanni Grote)

New York. R. E. Horsey (June): Larvae reported as numerous and destructive on loblolly pine and less common on two other varieties in ornamental plantings at Rochester on June 12.

A SAWFLY (Acantholyda erythrocephala L.)

New York. E. P. Felt (June 25): Occurred in numbers on several pine trees at Mt. Kisco.

New Jersey. C. L. Griswold (June 6): First adults observed this spring on May 6 at Morristown. Egg laying began on May 7, and first hatching observed on May 29. Larvae still in first instar on June 6.

A PINE SAWFLY (Neodiprion sertifer Geoff.)

New Jersey. C. L. Griswold (June 6): Observations indicate a further population increase in this State. General hatching occurred on May 10 in Morris County, and larvae were in last feeding instar on June 6. Generalable complete needle defoliation, instances of partial and complete severing of 1940 pine laterals and leaders, and gouging in the bark itself were observed.

WHITE-PINE WEEVIL (Pissodes strobi Peck)

New England. E. P. Felt (June 25): Locally injurious to various pines in southern New England.

Michigan. R. Hutson (June 22): Reported from Boulah and Shelby on May 24.

A WEEVIL (Hylobius radicis Buch.)

Massachusetts. J. V. Schaffner, Jr. (May): Infestation in a plantation of Corsican and Scotch pine at Weston still persists. Many adults hibernated beneath loose bark and in the duff at base of trees, and many larvae, from one-half to nearly full grown, in their galleries in the bark and cambium of the host trees.

A SCARABAEID (Anomala obliqua Horn)

Virginia. L. A. Hetrick (June 19): Feeding on the basal portions of tender new-growth needles of Pinus taeda. Beetles seem to be generally present in tidewater Virginia. Feeding of adults causes the needles to bend over and die. (Det. by E. A. Chapin.)

AN APHID (Pineus pinifoliae Fitch)

General. J. V. Schaffner, Jr. (June 24): Attracting considerable attention in natural stands of red spruce throughout the southern Adirondacks in New York, and in parts of New Hampshire, Vermont, and Massachusetts. Reported as abundant in many localities.

PINE SPITTLE BUG (Aphrophora parallela Say)

Massachusetts. J. V. Schaffner, Jr. (June 24): Very common throughout many plantations of Scotch pine in eastern part of the State. Very heavy infestation observed in a plantation of Scotch pine in Ashby.

A SCALE (Matsucoccus gallicolus Morrison)

Pennsylvania. T. J. Parr (June 24): Egg masses hatched at the usual time and young nymphs had settled on the new growth of attacked pitch pines by the last week in May at Mont Alto and Mount Union.

SPRUCE

EUROPEAN SPRUCE SAWFLY (Gilpinia polytoma Htg.)

General. P. B. Dowden (June 24): Emergence of adults considerably delayed this year at centers of heavy infestation in southern Vermont and New Hampshire, owing to unusually wet and cold spring weather. In 1939 emergence at these points was heavy on about June 1, whereas this year general emergence was not noted until June 13.

A SPRUCE NEEDLE MINER (Taniva albolineana Kearf.)

New York. J. V. Schaffner, Jr. (June 14): Larvae received in May. Reported that there was a light infestation on blue spruce at Boonville. Adults emerged from material on June 8.

Minnesota. A. G. Ruggles and assistants (June): Very abundant on spruce at new Brighton.

SITKA SPRUCE GALL APHID (Adelges cooleyi Gill.)

Pennsylvania. G. B. Sleesman (June 19): Heavy infestation on Douglas fir and blue spruce in the Philadelphia area.

A TUSOCK MOTH (Hemerocampa sp.)

Montana. H. B. Mills (June 19): About 100 larvae per tree (Englemann spruce 15 feet high, in the vicinity of Billings. Several trees defoliated. This is not H. pseudotsugae McD. nor H. vetusta Bdv.

SWEETGUM

A SCALE (Cryptophyllaspis liquidambaris Kot.)

Delaware. E. P. Felt (June 25): Sweetgum scale occurs commonly on a group of sweetgum trees at Wilmington. (Det. by H. Morrison.)

TUNG-OIL TREE

CORN EAR WORM (Heliothis ornigera Hbn.) and TOBACCO BUDWORM (H. virescens F.)

Florida. J. K. Painter (June 12): At Lamont larvae were found at base of tree, some fruit had dropped, and other damaged fruit was still on tree. (Det. by C. Heinrich.)

WILLOW

SPOTTED WILLOW LEAF BEETLE (Chrysomela lapponica L.)

Ohio. T. H. Parks (June 20): Beetles and larvae very abundant on willow; some defoliation of some trees generally.

Indiana. L. F. Steiner (June 24): Caused serious damage to willows throughout Vincennes and surrounding areas during the last 6 weeks.

Michigan. R. Hutson (June 22): Reported from Detroit, Lansing, and St. Johns.

GOTTONWOOD LEAF BEETLE (Chrysomela scripta F.)

Virginia. L. A. Metrick (June 24): Adults abundant on willows at West Point on June 12.

Kentucky. W. A. Price (June 27): Much damage to willows at Danville, Mayfield, and Louisville.

A SCALE (Chionaspis salicis-nigrae Walsh)

Michigan. R. Hutson (June 22): Reported from St. Johns, Leslie, East Lansing, and Detroit. This insect is becoming of increasing economic importance where willows are used for windbreaks.

A GALL MIDGE (Rhabdophaga sp.)

General. E. P. Felt (June 25): Found injurious to willow twigs. Wood so thickly studded with the larval cells as to practically girdle and kill branches in Stamford, Conn., and Princeton, N. J.

INSECTS BREEDING IN HURRICANE-FELLED TIMBER IN NEW ENGLAND

By E. A. Bess

Several millions board feet of timber were blown down in New England by a hurricane in September 1938. Immediate steps were taken and large quantities of this timber were salvaged before it was damaged appreciably by insects. Observations are being made on the important species encountered and some of the more economic ones are discussed below.

In salvaging the hurricane-felled pine timber, roundheaded borers (Cerambycidae) were the most important insects concerned. Logs heavily attacked by certain species of roundheaded borers are rendered practically worthless within a comparatively short time. Monochamus scutellatus Say rates first in economic importance and is exceptionally abundant this season. A large part of the present population bred in larger limbs and tops of hurricane-felled trees, and in the smaller-dimension material in the wind-thrown forests. Large numbers of Asemum noestum Hald. bred last season in stumps and larger logs. It is important economically, because rather extensive tunnels are made through the sapwood and heartwood. Several specimens of Tetropium cinnamopterum Kby., Graphisurus sp., and Rhagium lineatum Oliv. have been observed. Flatheaded borers (Sprengelidae) are abundant, but since their tunnels are confined to the cambium and outer sapwood they have done little damage to the hurricane-felled timber.

Bark beetles (Scolytidae) were found attacking this timber. They confine their feeding to the cambium, causing no direct damage to the potential lumber, but wood-staining fungi are often introduced by certain species. Ips calligraphus Germ., I. pini Say, Dendroctonus valens Lec., and Pityophthorus sp. (?)

appear to be the more important ones encountered in the living trees. So far very few trees have been killed by bark beetles. The following additional species have been found breeding in white pine: Orthotomicus caelatus Eichh., Ips grandis collis Eichh., Pityogenes hopkinsi Swaine, and Hylurgops pinifex Fitch.

INSECTS AFFECTING GREENHOUSE AND ORNAMENTAL PLANTS

A SCALE (Parlatoria chinensis Marlatt)

Missouri. J. A. Denning (May 13): Infestation which killed a number of altho noted at St. Louis. (Det. by H. Morrison.)

COTTONY-CUSHION SCALE (Icerya purchasi Mask.)

Mississippi. C. Lyle (June 25): There were several reports of this insect on shrubbery in the southeastern part of the State.

Arizona. C. D. Lebert (June): Several infestations observed on citrus and ornamentals in the Phoenix area during June. A few pittosporum plants killed, but in most cases Rodolia cardinalis Muls. is well established and taking care of the situation adequately.

A MEALYBUG (Pseudococcus sp.)

Ohio. J. S. Houser (June 1): Reported so abundant on the roots of bentgrass that the turf is dying. Insects are found 2 or 3 inches below the soil surface. (Det. by H. Morrison.)

FOUR-LINED PLANT BUG (Poecilocapsus lineatus F.)

Ohio. N. F. Howard (June 16): Present on a variety of young tender foliage at Columbus, especially in shaded or partly shaded places, attacking veronica, trumpet vine, chrysanthemum, mint, and elderberry.

Indiana. J. J. Davis (June 17): Observed at New Albany and Frankfort damaging phlox and other garden plants.

MULBERRY WHITEFLY (Tetraleurodes mori Quaint.)

Connecticut. E. P. Felt (June 25): Found in numbers on bittersweet at Westport.

AN APHID (Capitophorus gillettei Theob.)

New Jersey. M. D. Leonard (June 12): Several Russian-olive bushes at Ridgewood, previously uninfested, were found to have scattered colonies on the new leaves. This species has not been noted on smartweed, which grows in abundance near these shrubs.

ARBORVITAE

ARBORVITAE LEAF MINER (Argyresthia thuiella Pack.)

Connecticut. E. P. Felt (June 25): Somewhat prevalent at Meriden.

Maryland. E. N. Cory (June 14): Large numbers were seen in flight at Hagers-town.

A BUG (Lygaeus belfragei Stal)

Texas. R. K. Fletcher (June 14): Severe damage to arborvitae in and about Temple, Bell County.

BOXWOOD

BOXWOOD LEAF MINER (Monarthropalpus buxi Laboulb.)

Tennessee. G. M. Dentley (June 8): Found at Bristol, Sullivan County. Five in-fested boxwoods were destroyed. These are the only boxwood leaf miners reported in the State.

CRAPEMYRTLE

CRAPEMYRTLE APHID (Myzocallis kahawaluokalani Kirk.)

Virginia. L. A. Hetrick (June 24): Abundant and injurious to plants at West Point.

Alabama. J. M. Robinson (May 22): Observed on foliage covered with honeydew at Auburn.

GLADIOLUS

GLADIOLUS THRIPS (Taeniothrips simplex Morison)

Tennessee. G. M. Dentley (June 19): Reports received from Knox County.

HOLLYHOCK

AN APHID (Macrosiphum ambrosiae Thos.)

Utah. G. F. Knowlton (June 15): Extremely abundant on hollyhocks at Fort Duchesne and Logan.

LEAF BEETLES (Chrysomelidae)

Utah. G. F. Knowlton (June 15): Riddling foliage in many gardens at Logan and some at Brigham.

HONEYSUCKLE

AN APHID (Rhopalosiphum melliflorum Hottes)

New Jersey. M. D. Leonard (June 27): Moderate infestation on large honeysuckle bush at Ridgewood. Reported as being more numerous early in the month.

IRIS

IRIS WEEVIL (Mononychus vulpeculus F.)

Massachusetts. A. I. Bourne (June 6): Specimens sent in from Northampton, in central Hampshire County, with report that they were very abundant and causing considerable damage to the flower beds and also foliage of large plantings.

Michigan. R. Hutson (June 22): Reported from Ann Arbor and Lansing. Common in wild iris throughout the southern part of the State.

IRIS BORER (Macronoctua onusta Grote)

Michigan. R. Hutson (June 22): Reported from Oxford and East Lansing.

JUNIPER AND CEDAR

JUNIPER WEDWORM (Dichomeris marginellus F.)

Maryland. F. F. Smith (June 22): Severe damage noted on junipers in a number of ornamental plantings in the Silver Spring area. In one planting a thorough cleanup was made in 1938; light infestation occurred in the spring of 1939, became severe, and required another treatment in 1940 to save the plants.

Michigan. R. Hutson (June 22): Reported from Detroit, Kalamazoo, Spring Lake, Lansing, and Battle Creek.

A WEEVIL (Pachylobius picivorus Germ.)

Mississippi. C. Lyle (June 25): Specimens of the pitch-eating weevil were found on cedar trees in Choctaw County early in June.

LARKSPUR

CYCLAMEN MITE (Tarsonemus pallidus Banks)

Minnesota. A. G. Ruggles and assistants (June): Very abundant at Saint Paul.

LILAC

OYSTERSHELL SCALE (Lepidosaphes ulmi L.)

New York. R. E. Horsey (June 15): Lilac branch badly encrusted with old and newly set scale brought in for identification from a town south of Rochester.

Minnesota. A. G. Ruggles and assistants (June): Very abundant in Saint Paul on buckthorn and lilac.

LILAC BORER (Podosesia syringae Harr.)

Michigan. R. Hutson (May 24): Reported from Saint Joseph.

RHODODENDRON

RHODODENDRON MIDGE (Giardomyia rhododendri Felt)

Massachusetts. E. P. Felt (June 25): Caused some injury in the Boston area.

New Jersey. E. P. Felt (June 25): Some injury at South Orange.

ROSE

ROSE SAWFLY (Caliroa aethiops F.)

Nebraska. H. D. Tate (June 18): Found attacking rose plants in Sarpy County on June 6 and in Hall County on June 13.

Kansas. H. R. Dryson (June 25): Caused considerable injury to roses during early part of month.

ROSE LEAF BEETLE (Modonota puncticollis Say)

Pennsylvania. E. J. Udine (June 6): Numerous in some localities around Carlisle. Flowers and leaves eaten.

ROSE APHID (Macrosiphum rosae L.)

New Jersey. M. D. Leonard (June 27): Very few aphids observed on rose bushes and vines of several varieties at Ridgewood.

SNOWBALL

SNOWBALL APHID (Aphis runcidis L.)

New York. M. D. Leonard (June 29): Several snowball bushes, reported as moderately infested at Jackson Heights on May 27, have cleared up.

SPIREA

SPIREA APHID (Aphis spiraeola Patch)

New York and New Jersey. M. D. Leonard (June 27): Light infestations observed on many ornamental plantings at Jackson Heights, N. Y. Light infestation remaining at Ridgewood, N. J., on spirea, which a few weeks ago was heavily infested.

YEW

A PSYLLID (Paurocephala ilicis Ashm.)

Texas. R. K. Fletcher (June 21): Noted attacking yaupon in Jefferson County on June 13 and in Colorado County on June 14.

WEEVILS (Brachyrhinus spp.)

New York. M. D. Leonard (June 15): Reported as damaging several yew plants about 2 feet high, which were planted in boxes at Flushing.

INSECTS ATTACKING MAN AND

DOMESTIC ANIMALS

MAN

TROPICAL RAT FLEA (Liponyssus bacoti Hirst.)

West Virginia. F. C. Dishopp (June 29): Specimens submitted from Romney, where an old brick house was infested. (Det. by H. E. Ewing.)

North Carolina. F. C. Dishopp (June 27): Reported as occurring in great numbers in a house at Beaufort. (Det. by H. E. Ewing.)

Mississippi. C. Lyle (June 25): Specimens received from Noxubee and Madison Counties, where they were troublesome in houses.

MOSQUITOES (Culicinae)

Delaware. L. A. Stearns (June 4): Tremendous brood of Aedes sollicitans Wal. just emerged in Port Mahon area, causing great discomfort.

Ohio. N. F. Howard (June 24): Prevalent during the month at Columbus.

Utah. G. F. Knowlton (June 13): Very annoying and abundant.

DEER FLIES (Chrysops spp.)

Delaware. L. A. Stearns (June 18): C. flavida Wied. and C. fuliginosa Wied. were very abundant and annoying in the vicinity of Odessa, New Castle County.

Florida. F. C. Dishopp (June 25): Numerous during the last week in May, but fewer were seen on cattle at Government farm after June 7 at Panama City. Exceedingly annoying to both man and animals from June 1 to 19 in Bay County.

CHIGGER (Eutrombicula alfreddugesi Oud.)

Ohio. N. F. Howard (June 24): Became prevalent during the month at Columbus

AMERICAN DOG TICK (Dermacentor variabilis Say)

New Hampshire. F. C. Dishopp and C. N. Smith (June 29): Survey from June 26 to 28 in southern New Hampshire, especially in the vicinity of Lake Winnepesaukee, indicates that the infestation is distinctly localized. Infestation apparently uniformly heavier on the northeastern side of the lake, particularly in the area near Melvin and Moultonboro. Reported as numerous around Ossipee, near Freedom, and as occurring at Sandwich, Weirs, Alton, and Wolfeboro. Specimens taken for the first time at Tamworth and just south of Conway. Wood ticks said to have been in the former locality for at least 50 years, but this year was the first appearance of the pest near Conway. Ticks reported as having been somewhat more abundant than normal this season; decline in numbers during the last week or two.

Indiana. J. J. Davis (June 22): Unusually abundant throughout the State.

Nebraska. H. D. Tate (June 18): Specimen taken from the arm of a man on May 27 in Butler County.

CATTLE

HORN FLY (Haematobia irritans L.)

New Hampshire. F. C. Dishopp and C. N. Smith (June 29): From June 26 to 28 infestations ranged from 10 to 75 per animal in southern New Hampshire. At Melvin they were more numerous than at other points noted. About 50 flies per animal there, and some lesions on cattle from their bites.

Florida. A. L. Brody (June 25): Thousands seen on animals at Panama City. They were continuously numerous during the last month. It is reported from northwest and north of Panama City that the flies decreased considerably during June, and animals examined on June 19 on the highway northwest and north of Panama City had only 5 to 10 flies per head, whereas on June 18 animals at Panama City had thousands per head.

Missouri. H. T. Rainwater (June 27): Severe in the bluegrass region, from Chillicothe to Saint Joseph.

Kansas. H. T. Rainwater (June 27): Severe in the vicinity of Emporia.

Mississippi. S. W. Simmons (June 2): Very annoying at Electric Mills to dairy cattle; as many as 200 noted per animal.

Texas. D. C. Parman (June 18): The horn fly has practically disappeared from the very heavy infestation observed about Uvalde in May. No extensive examinations made to determine the cause of this disappearance, but dung beetles, especially Canthon spp., were very active during May. The decrease in horn-fly population was from approximately 500 to 3,000 per animal early in May to 0 to 100 at present.

SCREWORM (Cochliomyia americana C. & P.)

Oklahoma. D. C. Parman (June 20): Unofficial records indicate that the fly reached Meers on about June 12, about a week or 10 days later than normal.

Texas. D. C. Parman (June 20): As indicated by status-trap catches, the general population over the escarpment area, in southwestern Texas, is approximately 60 percent of last year's population, and as that was rather low, it is indicated that this year's population is about 40 percent of the average for the last 5 years. This year showed the lowest May population during the 5-year period. General population in this area for March was normal. During the latter half of May on the lower escarpment a high population of 1,206 C. americana was indicated in 1 local area for the trapping period. The central escarpment showed a peak population of 637. It is indicated that the populations did not build up on the Edwards Plateau during May. Peak catches in the southern area amounting to 122 adults. As of June 15, catches in traps along the lower escarpment show a tendency toward decrease of population, the high catch being 385. Along the central escarpment there has been a considerable increase in population, the high catch being 1,059. No very considerable increase indicated in the Plateau region. It is considered that the screwworm problem has been less severe this year than for several years, with only a few exceptions in local areas. Inquiries have revealed that the high populations indicated by trap catches locally have developed from infestations in late calves. Records indicate that migration of C. americana to the Edwards Plateau was about a week or 10 days later than normal.

STABLEFLY (Stomoxys calcitrans L.)

Kansas. H. R. Bryson (June 25): Abundant and causing considerable annoyance to livestock on farms. Also abundant in towns.

POULTRY

CHICKEN MITE (Dermanyssus gallinae Deg.)

Michigan. R. Hutson (June 22): Appeared in a large chicken plant at South Lyons in unusual numbers. They were apparently from pigeons and sparrows driven out of a loft. Also an infestation occurred in a public building near Lansing.

HOUSEHOLD AND STORED-PRODUCTS INSECTS

TERMITES (Isoptera)

Delaware. L. A. Stearns (May 6): Infestation reported in a dwelling in Newark, New Castle County.

Maryland. E. N. Cory (June 17): Noted in buildings generally.

Michigan. R. Hutson (June 22): Received from Kalamazoo, Muskegon, Grand Rapids, Pawamo, and Decatur during June.

Oklahoma. C. F. Stiles (June 26): Injury reported during the month from Bryan, Oklahoma, Tulsa, and Payne Counties.

ANTS (Formicidae)

Connecticut. N. Turner (June 20): Numerous complaints were received about the unusual number of lawn ants. Species involved seem to be Formica fusca L., F. exsectoides Forel, Lasius interjectus Mayr, and Tetramorium caespitum L.

New York. R. E. Horsey (June 18): Camponotus herculeanus pennsylvanicus Deg. was observed on June 4 and 18, tunneling in the trunks of two live Sophora japonica in widely separated situations in Rochester. Bark at the base of the tree had been injured, leaving the wood exposed so that the ants could enter the trunk.

M. R. Smith (June 3): Ants received from Binghamton were found to be T. caespitum.

New Jersey. M. R. Smith (June 7): T. caespitum L. was received from Mickleton on May 28.

Pennsylvania. M. R. Smith (June 1): Specimens of T. caespitum were received from Drexel Hill.

Maryland. E. N. Cory (June 17): Numerous complaints received of ants attacking lawns and entering houses.

Virginia. R. A. St. George (June 6): There were heavy emergences of C. castaneus Latr. in Colonial Village. Winged adults covered show windows and nearby sidewalk around several buildings early in the evening (9 p. m.). (Det. by M. R. Smith.)

Ohio. N. F. Howard (June): Ants at Columbus seem to be more abundant on lawns than average, judging from complaints received.

Indiana. J. J. Davis (June 22): Ants were unusually troublesome in lawns and gardens. Reports were received from all parts of the State. C. herculeanus pennsylvanicus was common in many localities.

Missouri. J. A. Denning (May 31): T. caespitum was reported from Saint Louis as attacking various plants. (Det. by M. R. Smith.)

North Dakota. F. G. Butcher (June 25): Ants were reported as moderately abundant.

Nebraska. H. D. Tate (June 18): During the period May 16 to June 15 ants were annoying both indoors and outdoors. These reports came chiefly from Douglas, Harlan, Merrill, and Pawnee Counties. Specimens of C. herculeanus pennsylvanicus were sent in from Buffalo County on May 23.

Mississippi. C. Lyle (June 25): The fire ant (*Xolenopsis xyloni* McCook) was causing annoyance in a house in Sunflower County. Also reported as abundant in Warren County. The tiny black ant (*Monomorium minimum* Buckl.) was annoying in some houses in Hinds County.

Oklahoma. C. F. Stiles (June 26): The red harvester ant (*Pogonomyrmex barbatus* F. Smith) is on the increase throughout much of the State, and many complaints have been received during the last few weeks.

Texas. R. K. Fletcher (June 21): *P. barbatus* was reported from Dallas County on June 3, Harris and Fayette Counties on May 21, and Haskell County on June 21.

Arizona. C. D. Lebert (June 4): *S. xyloni* formed nests all around the base timbers of a turkey brooder at Phoenix. As they crawled into the brooder, the young turkeys picked them up. The ants apparently were stinging the turkeys in the throat, causing partial paralysis and subsequent death. Several dozen turkeys lost before control measures were applied.

CARPENTER BEE (*Xylocopa virginica* Drury)

District of Columbia. R. A. St. George (June 3): Several requests for information concerning control have been received from Washington and vicinity. The were found on rafters, under porches, and on other exposed exterior woodwork.

GERMAN COCKROACH (*Blattella germanica* L.)

Nebraska. H. D. Tate (June 18): Reported from Furnas County as infesting a store building.

Alabama. J. M. Robinson (April 26): Reported in a dwelling at Samson.

Mississippi. C. Lyle (June 25): Specimens were received from Scott County late in May.

ORIENTAL COCKROACH (*Blatta orientalis* L.)

Minnesota. A. G. Ruggles and assistants (June): Moderately abundant in houses at Saint Paul and Minneapolis.

A COCKROACH (*Parcoblatta pennsylvanica* Deg.)

Indiana. J. J. Davis (June 22): Cockroaches are a common problem in many localities. The outstanding roach problem during the last month has been this woods roach, which has been reported from many localities.

Minnesota. A. G. Ruggles and assistants (June): Moderately abundant in houses at Saint Paul and Minneapolis.

A POWDER POST BEETLE (Lyctus planicollis Lec.)

Washington. M. A. Yothers (June 1): Adults were found emerging from oak window frames inside a house, built 20 to 25 years ago, in the Yakima Valley.

CLOVER MITE (Bryobia praetiosa Koch)

Minnesota. A. G. Ruggles and assistants (June 15): Several houses in a Saint Paul block were badly infested with this mite, crawling over the walls.

FLOUR BEETLES (Tenebrionidae)

Iowa. R. T. Cotton (June 5): Cynaesus angustus Lec. recently found infesting stored corn in Iowa and Tama Counties together with Tribolium madens Sharp. The latter was also taken in Ida County infesting stored corn and ground feed and in Sioux County infesting bran.

WHARF BORER (Nacorda melanura L.)

Michigan. R. Hutson (June 22): Received from Battle Creek. This is the second appearance of this pest in the State. Last year it was found destroying timbers in a building at Detroit.

A PYRALID (Aphomia gularis Zell.)

California. C. K. Fisher (May 24): Found in dried fruit in six packing plants visited by the writer in the San Jose district. Observed in packing plants in Oakland at various times.

THE MORE IMPORTANT RECORDS FOR JULY

Grasshoppers were appearing in large numbers in the Panhandle of Texas and Oklahoma and in southwestern Kansas. General flight in a northwesterly direction over Kansas and into southwestern Nebraska was reported. Heavy populations were also reported from northwestern Wyoming and north-central Utah, and minor flights were reported from north-central Montana.

Mormon crickets were migrating in east-central North Dakota and south-central South Dakota. Populations were smaller in east-central Colorado and south-central Montana. In Montana control operations were completed during the third week in July. Heavy deposits of eggs were observed about the middle of the month in the Big Horn Mountains of Wyoming. Large numbers of crickets are migrating from the higher altitudes toward crop land in eastern Idaho and rather heavy populations are still present in southern Washington.

Rather heavy cutworm damage was reported during the month from the South Atlantic States, including Alabama. Scattered reports of damage were received from the Great Lakes region and from the Pacific Northwest.

Limited outbreaks of the armyworm were reported from the Great Plains, also an isolated outbreak in the District of Columbia.

Fall armyworm was reported from many localities along the Atlantic seacoast and Gulf Coast States.

The beet webworm was very prevalent in the Great Plains States and was doing serious damage in North Dakota and South Dakota, and was also reported as present in destructive numbers in Utah.

Rose chafer was appearing in destructive abundance from New England westward across New York and the East Central States into Minnesota and Iowa.

Damage to corn by the grape colaspis was generally prevalent in the East Central States and southward to the Gulf and into Texas.

Outbreaks of Say's stinkbug were reported from North Dakota, South Dakota, Oklahoma, and Utah.

The hessian fly survey in Ohio indicates a decided decrease in the infestation over that of last year, being the lowest since 1918.

Chinch bug infestations were generally spotted over the East Central States heavy infestations having occurred in Missouri, Iowa, Nebraska, and southward to Oklahoma.

The corn silk beetle was unusually abundant in the Gulf States.

Codling moth damage in eastern New York was more extensive during the last week in July than at the same time last year. Considerable damage to pears was reported from eastern New York. In general, the insect was less troublesome than usual in the Middle Atlantic States while in the East Central States damage was decidedly more serious.

Rosy apple aphid and green apple aphid infestations were heavy in New England and New York, southward to Delaware, and westward to Ohio and Indiana.

European red mite developed into outbreak proportions toward the end of the month in New England and New York.

Grape leafhopper was generally abundant from North Dakota to Kansas, and also in Utah.

California red scale was more numerous generally than it was a year ago. Severe infestations of black scale are reported from the interior parts of southern California.

Blister beetles were generally prevalent and troublesome along the Atlantic seaboard and around the Gulf, also in the Lake States from Michigan to Minnesota and in the Great Plains, Utah, and the Pacific Northwest.

Potato flea beetles were damaging potatoes in Michigan, North Dakota, and South Dakota, and a severe outbreak occurred in Wahkiakum County, Wash.

Heavy damage to peas by the pea aphid was reported from Utah and Washington.

The cabbage shoot weevil (Ceutorhynchus assimilis Payk.) was seriously damaging cabbage seed in the seed-producing area of western Washington.

Squash bug was occurring in destructive numbers in widely scattered areas throughout the country from New York to Mississippi and westward to Texas and Utah.

The corn ear worm, though appearing later than usual in many States, was seriously destructive from New York to the entire Gulf region and in Utah.

Heavy infestations of pepper weevil were reported from southern California.

Beet leafhopper was producing considerable curly top on sugar beets in parts of Utah and Nevada.

Cotton boll weevil, though generally below normal in numbers, was reported as increasing rapidly during the latter part of July in Florida, Georgia, Louisiana, and Texas.

Cotton flea hopper is injuriously abundant in northern Texas.

Cotton aphids were generally low in numbers early in the month but were building up rapidly in a number of States during the last week.

The fall webworm is unusually abundant in the eastern part of the country from New England southward to Florida and westward to Mississippi.

The elm leaf beetle is very abundant in New England and has been reported locally as far south as Virginia and westward to Ohio. Also reported from Utah.

GENERAL FEEDERS

GRASSHOPPERS (Acrididae)

General. C. Wakeland (June 28): No populations of Dissosteira longipennis Thos. remain in Colorado and New Mexico to justify control. In Baca County, Colo. most Melanoplus mexicanus Sauss. are adults. Light populations have reached grainfields of northern Baca County and eastern Kansas. M. mexicanus populations in northern and northeastern Colorado are light, except in alfalfa where baiting by farmers has been lacking. Same situation in Wyoming. Crop damage heavy in western Nebraska, owing to lack of control by farmers. Crop losses not over 5 percent in Montana. Situation at Kittson, Marshall, and Polk Counties, Minn., well in hand. M. mexicanus late in northeastern North Dakota but beginning in Pembina County. Populations of M. bivittatus Say extremely heavy in east-central and southern counties of South Dakota.

Colorado. B. M. Gaddis and assistants (July 14-20):^{1/} Survey of El Paso, Otero, Pueblo, Las Animas, and Lincoln Counties revealed few D. longipennis. Less than 1 per square yard found over an area of 20 sections in these counties. From 75 to 95 percent of M. bivittatus, M. mexicanus, and Aeoloplus turnbullii Thos. are in the adult stage.

California. (July 14-20): Second-generation M. mexicanus now present in Imperial County averaging 25 per square yard in many fields. Populations are 5 percent first instar, 10 percent second, and 80 percent third instar. About 2 percent of the first-generation adults remain. M. devastator Scudd. is 98-percent adult in San Diego County.

Nevada. (July 14-20): Oviposition at peak throughout the State, with that of M. occidentalis Thos. practically completed.

Texas. (July 14-20): Heavy concentrations of M. differentialis Thos. reported along field margins, especially small-grain fields, in Potter and Oldham Counties, numbering as high as 25 per square yard along margins of some fields. Concentrations of M. mexicanus in these counties were not over 10 per square yard in fields, or 10 per square yard in margins. M. packardii Scudd. and M. differentialis are dominant in Dallam and Hartley Counties and A. turnbullii is dominant in Hansford County. Native crop-hopper populations range from 20 to 25 per square yard.

F. L. Thomas (July 9): Damaged cotton along creeks and the east fork of the Trinity River.

Oklahoma. (July 7-13): Dominant species in Texas and Cimarron Counties are A. turnbullii, M. mexicanus, and M. packardii. Very little control work has been done.

F. E. Whitehead (July 24): Outbreaks in the entire Panhandle have been much more severe than anticipated.

Kansas. (July 7-13): A. turnbullii remains the dominant species throughout the western part of the State. Certain local infestations show as high as 8

^{1/} Where no name is given after the State the report is by B. M. Gaddis and assistants.

percent M. mexicanus but such areas are small. M. bivittatus appears to be dominant in alfalfa fields. Aulocara ellioti Thos. and A. turnbullii are plentiful in pastures. Considerable crop damage has developed within the last 10 days. Heavy damage to wheat and barley was reported in the southwestern counties of the State, averaging 20-percent damage to barley and 6-percent to wheat. As high as 50-percent damage reported in a few fields. Grasshoppers are moving into corn in areas where most of the wheat has been cut. Corn in isolated areas, especially in river valleys, is being damaged severely. Marginal damage of 100 percent has occurred in some fields of high acreage and some smaller fields have been completely destroyed. M. differentialis and M. bivittatus are causing most damage to corn. General flights of M. mexicanus were reported to have occurred in a northeasterly direction over northwestern Kansas on July 8, 9, and 10. (July 14-20): From 5- to 10-percent damage to wheat and from 15- to 20-percent damage to barley is reported in Stanton and Morton Counties.

Nebraska. (July 14-20): Heavy flight moving southwestward reported on July 12 in Howard County, southeastern Nebraska. M. differentialis can now be found generally throughout central Nebraska and may soon become the dominant species in this area. Adults of economic importance continue to remain along roadsides, fence rows, and idle lands. Some migration into cornfields is occurring and marginal damage in a few areas is reported as severe. Populations are increasing and adult spread is progressing rapidly in the southwestern part of the State. High marginal concentrations of A. turnbullii are still present in certain areas. Ninety-five percent of A. turnbullii, 98 percent of M. mexicanus, 100 percent of M. confusus Scudd., 95 percent of M. bivittatus, and 50 percent of M. differentialis are in the adult stage. Fungus reported causing hopper mortality of less than 3 percent in a tableland area located between the North and South Platte Rivers, northwest of Ogallala, in Keith County.

Missouri. (July 7-13): M. differentialis is the dominant species throughout the southeastern counties of Scott, Stoddard, Pemiscot, Dunklin, and New Madrid. M. mexicanus reported ovipositing.

L. Haseman (July 23): Conditions normal except for a few south-central and southeastern counties where second-brood M. mexicanus have been attracting some attention. The two-striped species is most common in the central part of the State and was mating and preparing to oviposit on July 22.

Iowa. (July 14-20): M. bivittatus are all adult throughout the State and 75 percent of the M. differentialis are in the last two instars. M. mexicanus all adult and oviposition is in progress. Fungus reported throughout the State and in some areas has reduced hopper populations about 30 percent. Beefly larvae are also reported as infesting hoppers.

Wyoming. (July 14-20): Approximately 75-percent adult in the irrigated area in Park, Sheridan, Big Horn, Washakie, and Fremont Counties, with oviposition beginning. M. femur-rubrum Deg. is still hatching and the percentage is high, particularly in Park and Big Horn Counties. High percentage of adults present in Goshon and Laramie Counties and oviposition is progressing rapidly.

Utah. G. F. Knowlton (July 26): Outbreak severe in many localities. Most extensive control work particularly in Utah County. Most of the hoppers are now winged, except in late-hatching localities. Mating of M. bivittatus and M. packardii has been observed during the last 2 weeks.

Montana. (July 14-20): Flights reported at Turner, Treelon, Rudyard, 38 mile northwest of Havre, and 27 miles northwest of Rudyard.

South Dakota. (July 14-20): Harvesting of small grains is causing considerable movement of hopper populations throughout the State. Populations are shifting to cornfields, and marginal damage in localized areas is increasing rapidly. Severe damage to barley and oats reported in a number of counties.

H. C. Severin (July 26): Leaving cut-over grainfields and attacking sorghum, corn, and late-planted cane, resulting in much damage. Some local flights have already occurred.

North Dakota. (July 14-20): Approximately all M. bivittatus and 80 percent of the M. mexicanus in northwestern North Dakota are in the adult stage. On July 16 a local flight of M. mexicanus was reported northward in Steele County. Local flights reported in Traill and Grand Forks Counties during the week. Reported moving into flaxfields in Pembina and Griggs Counties, where they were causing light damage. Considerable damage to barley in Pembina County reported.

J. A. Munro (July 21): Emergence less than 20 percent that expected in a field under observation at Langdon, based on egg surveys made in the fall of 1939 and again in the spring of 1940. Cause of curtailed hatch not definitely apparent. M. mexicanus was the predominating species.

Minnesota. (July 14-20): From 20 to 85 percent of M. bivittatus, the dominant species in the northwestern counties of Norman, Mahanomen, Lake of the Woods, Beltrami, Koochiching, and Roseau, are now adult.

Wisconsin. (June 30-July 6): Infestations are localized and spotted and far less serious than was anticipated. M. bivittatus appears to be the dominant species at present. Weather conditions have greatly delayed development of hatch and crop injury has been light.

E. L. Chambers (July 30): Serious injury to new seeding and second-crop alfalfa and clover just beginning to be reported from areas where heaviest infestations were forecast by last fall's egg survey. Control measures are being used. M. bivittatus, which was not recorded as an important species until this year, seems to be dominant in the northern two-thirds of the State. M. femur-rubrum is about equally abundant in the southern part of the State.

Michigan. (July 14-20): M. mexicanus constitutes about 75 percent of the population in the northeastern and north-central counties. M. femur-rubrum, Cannula pellucida Scudd., and Ageneotettix deorum Scudd. compose the remaining 25 percent. Hatch of all species is practically complete. M. femur-rubrum is largely second, third, and fourth instar, while about 30 percent of the other species mentioned are adult. Damage reported to oats, alfalfa, clover, beans, raspberries, corn, apple trees, and melons.

Arkansas. D. Isely (July 23): Causing local damage, particularly in north-eastern counties. Differential grasshopper is the species chiefly involved.

Mississippi. C. Lyle (July 25): Nymphs, thought to be M. differentialis, were taken, and M. femur-rubrum was causing injury in Leflore County the latter part of June. Grasshoppers reported as more numerous and generally distributed in northwestern Mississippi than for several years.

MORMON CRICKET (Anabrus simplex Hald.)

North Dakota. J. A. Munro (July 22): Observed crossing highway in the vicinity of Lakota. Reported more numerous farther south in the county..

South Dakota. (July 7-13): Reported in Stanley, Lyman, Mellette, Todd, and Jones Counties. (July 14-20): All cricket bands in Jones County greatly reduced and remaining crickets are now scattered throughout the eastern two-thirds of the county.

Nebraska. (July 7-13): Rather numerous in a few areas of Banner and Scotts Bluff Counties.

Colorado (July 7-13): Less than 2 per square yard were reported in northern Lincoln and western Kit Carson Counties. Marginal infestation of 75 per square yard reported on a farm north and west of Flagler, in Kit Carson County. Less than 1 cricket per square yard present in the field.

Montana. (July 14-20): Large numbers still present in the Wolf Mountains of Big Horn County. No longer practical to continue control operations, as the crickets are so far removed from crop areas.

Wyoming. (July 7-13): Crickets in all areas observed are now in adult stage; oviposition nearly completed in some areas of Hot Springs County; heavy deposits of unhatched eggs present over a large area in the Big Horn Mountains, Sheridan County. No embryonic development appears to have taken place and the number of eggs present apparently is as great now as at the time the egg survey was made in the fall of 1939. A few seventh-instar nymphs and adults noted in this area.

Nevada. (July 14-20): Oviposition is from 50- to 75-percent complete throughout many areas at the lower altitudes.

Idaho. (July 14-20): Large numbers in Clark County now migrating from higher altitudes toward crop areas in the vicinity of Kilgore and Medicine Lodge. Many crickets at higher altitudes are in the fourth instar. A heavy infestation, which covered approximately 12,000 acres in the lower altitudes of this county, has been practically cleaned of crickets. Large infestation in the Juniper-Butte vicinity of Fremont County has been materially reduced. Oviposition is about 50-percent completed in some areas, while in others it appears to have just begun.

Utah. (July 14-20): Most crickets throughout the State have completed oviposition.

G. F. Knowlton et al. (July 13): In Tooele, Juab, and Utah Counties approximately 75 percent of the eggs have been laid and most of the areas are lightly infested. (July 20): Band of fifth-instar nymphs located in the Cedar Breaks-Brian Head Peak area.

Washington. (June 30-July 6): Rather heavy populations still present adjacent to crop lands in the Pasco area of Franklin County. Oviposition was almost complete, migrations were not appearing, and, as harvesting had already started, crop damage is no longer likely to occur.

Oregon. (July 14-20): Oviposition practically complete in Gilliam, Sherman, Wasco, and Jefferson Counties.

CUTWORMS (Noctuidae)

Delaware. L. A. Stearns (June 24): A loss of about 25 percent occurred in a planting of 25 acres of young corn at Port Penn, caused by the yellow-striped armyworm (Prodenia ornithogalli, Guen.). (Det. by C. Heinrich.)

Georgia. P. M. Gilmer (July 20): Feltia sp. reported from Sylvester, Worth County, as doing considerable damage on runner peanuts. Spanish type seems to have suffered much less damage. These are the first specimens submitted. A number of fields are almost ruined. Most of the reports have come from west or southwest of Tifton. (Det. by C. Heinrich.)

Florida. J. R. Watson (July 22): Semitropical armyworm (Prodenia eridania Cn.) very common from Palatka to Bradenton, attacking corn at Gainesville, gladiolus at Palatka, and castor-beans in many localities.

C. S. Rude (July 27): Great deal of damage to cotton being done in some fields in Lake County. Larvae are migrating from tomato fields and from weeds. Also becoming increasingly numerous in Marion County and observed in a few fields in Alachua County.

Tennessee. H. Lamb (July 25): Larvae of Feltia sp. found in nursery soil near black locust seedlings that had presumably been fed upon and girdled by them. Collected at Clinton and Pikeville. (Det. by C. Heinrich.)

Alabama. J. M. Robinson (July 16): Climbing cutworms were attacking cotton squares at Auburn today.

Michigan. R. Hutson (July 24): Sugar beets at Menasha considerably damaged by Scotogramma trifolii Rott. (Det. by C. Heinrich.)

Wisconsin. E. L. Chambers (July 3): Considerable loss to truck crops reported in the vicinity of Winnebago and Brown Counties and in the southern part of the State.

Nebraska. C. Wakeland (July 2): Army cutworm, Chorizagrotis auxiliaris Grot., reported as very prevalent on alfalfa in Franklin County.

exas. R. K. Fletcher (July 22): Causing severe injury to garden in Travis County on July 6.

evada. G. G. Schweis (June 29): Greasy cutworms (Agrotis ypsilon Rott.) reported as damaging sugar beets in the Lovelock area.

ashington. L. G. Smith (July 17): Five acres of seed peas in Clallam County severely damaged by cutworms. Severe damage to corn in Pierce and Clark Counties. Serious outbreak occurring throughout the north end of Whidby Island, Island County, on July 13. (July 24): Doing extensive damage on July 15 to peppermint, corn, and root crops on Puget Island. Infestation in mint fields reported as being 6 weeks earlier than usual.

egon. D. C. Mote and assistants (June 24): Fifty-percent loss by A. ypsilon reported on one 20-acre red-beet field at Eugene. (July 15): The variegated cutworm (Peridroma margaritosa Haw.) has been extremely numerous and damage has been severe in various places in the Willamette Valley. Field peas and clover have been most heavily damaged. Clover heads in some cases were so badly eaten that they were not harvested for seed. (Det. by L. P. Rockwood.)

ARMYWORM (Cirphis unipuncta Haw.)

istrict of Columbia. W. R. Walton (July 23): Specimen found at two locations on one street in Washington.

isconsin. (July 30): Serious but limited outbreaks observed in six counties where control requests have been received. Reported from a number of other counties.

braska. H. D. Tate (July 17): Reported as present in Saline County on June 16.

C. Wakeland (July 2): Reported as present in Richardson County.

FALL ARMYWORM (Laphygna frugiperda A. & S.)

ew York. N. Y. State Coll. Agr. News Letter (July 22): Light infestation generally distributed on Long Island.

istrict of Columbia. W. R. Walton (July 23): Report of what is possibly this species received from the northwestern part of the city.

irginia. H. G. Walker (July 12): Larvae collected from sweet corn near Quinby, in Accomac County. (Det. by C. Heinrich.)

issippi. C. Lyle and assistants (July 25): Injuring corn in Sunflower County and in the Meridian area. Possible that report from Chickasaw County of budworms on corn was this species.

Louisiana. J. W. Ingram (July 9): Doing serious damage to sugarcane and corn on a number of farms south of Houma on June 26. Later found in damaging number on sugarcane and corn in Lafourche and Vermilion Parishes, in addition to other locations in Terrebonne Parish. Fed on uncultivated grasses in sugarcane and corn rows and later ascended sugarcane or corn plants. Infestations widely scattered. Injury heaviest in varieties of cane having an upright growth and a poor stand, with some fields of cane being 30-percent defoliated and some plants almost completely defoliated. By July 2 about 50 percent of the larvae had pupated; by July 9 about 95 percent had pupated and a good percentage of moths had emerged.

WEBWORMS (Loxostege spp.)

Minnesota. M. W. Wing (July 15): Present at Lewiston. Abundant on alfalfa and Pinewood and abundant at Cambridge, Grainfield, and Baudette.

Nebraska. H. D. Tate (July 17): Specimens found to be very numerous on lawns. Hitchcock sent in on July 9.

BEEET WEBWORM (Loxostege sticticalis L.)

Minnesota. A. G. Ruggles and assistants (July 6): Moths abundant and covering windows at night. Abundance noted in potato fields during day. First noticed on evening of July 4 at Cambridge, Osanti County. (July 15): Abundant at Aitken, Albert Lea, and in Hubbard County.

North Dakota. J. A. Munro (July 21): Severe injury to a few sugar beet fields reported from the Grand Forks area.

South Dakota. H. C. Severin (July 26): Considerable damage to sugar beets and garden vegetables on July 24 in the Belle Fourche area.

Nebraska. H. D. Tate (July 17): Larvae sent in from Franklin County on June 1. Adults sent in from Hall County on June 25 and reported as abundant in the yard. Adults observed to be extremely abundant in alfalfa and lawns in Hall, Polk, and Merrick Counties on July 2.

Utah. G. F. Knowlton et al. (July 27): Destroyed 3 acres out of a 4½-acre sugar beet field at Elgin. Less severe damage to beets and alfalfa at Green River.

STRAWBERRY FRUIT WORM (Cnephasia longana Haw.)

Oregon. D. C. Mote and assistants (June 25): Oviposition 90-percent complete. Damage serious on strawberries and flax.

TIGER MOTHS (Apantesis spp.)

Kentucky. W. A. Price (July 25): Larvae of A. phalerata Harr. received from Upton with statement that they were feeding on corn and tobacco.

Alabama. J. M. Robinson (July 16): Larvae reported on cotton, corn, and lespedeza at Athens, Florence, and Huntsville on June 27.

Mississippi. C. Lyle (July 25): Larvae tentatively identified as A. rectilinea French received the last week in June and the first week in July from Holmes, Hinds, and Tate Counties, where they were feeding on cotton, cro-talaria, watermelon, and other plants.

SALT-MARSH CATERPILLAR (Estigmene acraea Drury)

Texas. R. K. Fletcher (July 22): Reported in Harris County on June 24, injuring cantaloup, corn, peas, and watermelon.

WHITE-LINED SPHINX (Sphinx lineata F.)

South Dakota. H. C. Severin (July 26): More abundant than usual throughout the State.

Washington. L. G. Smith (July 17): Outbreak observed on July 14 at Steptoe and Oakdale, Whitman County. Larvae had completely stripped crested wheat-grass, mustard, and Chinese lettuce. Later marched onto garden crops and weeds about the lawn. Causing only moderate damage to potatoes and peas, as most of the larvae were maturing and entering the ground to pupate. First infestation ever noted by farmers in this district.

MAY BEETLES (Phyllophaga spp.)

Wisconsin. E. L. Chambers (July 3): Caused defoliation of oaks in northwestern part of State.

Iowa. C. J. Drake (June 28): Doing damage in meadows and cornfields in the vicinity of Northwood and Mason City. Drought a few years ago considerably decreased population throughout the eastern half of State.

Kansas. H. R. Bryson (July 30): Attacking young Chinese olms at McPherson on July 25.

JAPANESE BEETLE (Popillia japonica Newm.)

Vermont. H. L. Bailey (July 29): Adults abundant on July 24 at White River Junction, in south-central Vermont.

Rhode Island. A. E. Stone (July 26): Abundant in places previously infested, and some new places have been discovered.

Connecticut. J. P. Johnson (July 22): Beetles first reported at New Haven on June 29. Very scarce until July 3 and general emergence began on July 12, about 2 weeks late..

New York. M. D. Leonard (July 28): First adults observed at Flushing on June 30. Feeding has been moderate, owing to treatment of foliage, and mostly on upper parts.

N. Y. State Coll. Agr. News Letter (July 8): On Long Island beetles were found on Institute grounds on July 1. Very few found since then. Emergence began in Westchester County on June 28. (July 29): Emerging large numbers in the vicinity of Kingston, Ulster County.

New Jersey. M. D. Leonard (July 18): Reported by grower of outdoor rose plants at Ridgewood as first starting to feed on July 15.

Pennsylvania. M. D. Leonard (June 30): In a rose garden at Bethlehem.

Delaware. L. A. Stearns (July 23): Conspicuous feeding noticed from Middletown in the north to Magnolia in the south. Damage severe in vicinity of Dover. Peak of activity occurred on week-end of July 21.

District of Columbia. R. A. St. George (July 15): Leaves of sycamore trees considerably injured. Many beetles in flight.

Virginia. R. A. St. George (July 15): Adults feeding on shrubbery at Arlington, near East Falls Church, believed to be first appearance in this vicinity.

ROSE CHAFER (Macrodactylus subspinosus F.)

Maine. E. P. Felt (July 24): Reported in numbers from Wilton.

Vermont. H. L. Bailey (July 29): Abundant throughout State.

New York. R. E. Horsey (July): Numerous in the southern part of Rochester on flowers of Sorbaria sp. and rose and on grape leaves.

N. Y. State Coll. Agr. News Letter (July 8): In Wayne County, western New York, beans and cabbage are still being attacked. (July 15): Much less numerous in Ulster County, eastern New York, than last year, but has caused light damage on grapes, apples, and peaches in a few orchards. (July 22): Found on beans in Albany County.

Michigan. R. Hutson (July 24): Throughout State south of Shelby-Saginaw line.

Indiana. J. J. Davis (July 26): Outbreak reported from Warsaw on June 22.

Wisconsin. E. L. Chambers (July 3): Very abundant in light sand areas of south and central parts of the State.

Minnesota. M. W. Wing (July 15): Abundant on roses at Saint Paul.

Iowa. C. J. Drake (June 28): Collected in large numbers during week of June at Clinton and De Witt.

GRAPE COLASPIS (Colaspis brunnea F.)

Ohio. J. S. Houser (July 2): Damage to corn at Wakeman so extensive that it is wilting and dying.

T. H. Parks (July 24): Corn sample sent in from Sandusky, Erie County, with statement that plants were stunted and lower leaves dead.

Alabama. J. M. Robinson (July 16): Reported on peanuts and velvetbeans on July 9 and on corn on July 15 at Flomaton.

Mississippi. C. Lyle, et al. (July 25): Adults injuring cotton plants in Jones County and the Durant area.

Louisiana. R. C. Gaines and assistants. (July 13): Causing damage on a few acres of cotton at Transylvania, East Carroll Parish.

Indiana. J. J. Davis (July 26): Damage to corn continued until nearly July 1. Practically 90 percent of cornfields in Spencer County reported infested and many stands reduced 50 percent. Many newly set strawberry plants damaged at Jeffersonville, in the southern end of the State, some acreages showing losses of from 25 to 50 percent. Most of the larvae had pupated by June 26.

Illinois. W. P. Flint (July 26): Adults very numerous in legume fields, principally in clover and soybeans. Also found on smartweed, morning glory, and leaves of hazel, grasses, and other woody plants.

Missouri. L. Haseman (July 23): Serious damage reported in upland corn planted as late as June 1 in southeastern part of State.

Texas. R. K. Fletcher (July 22): Reported as attacking fruit, probably peaches, at Jasper on June 18.

WIREWORMS (Elateridae)

South Carolina. F. Sherman and W. C. Nettles (July 29): Sand wireworm (Horistonotus uhlerii Horn) below normal. It has been severe, following cowpeas of last year. Few following crotalaria, velvetbeans, or weeds of fallowed land.

Louisiana. C. O. Eddy (July 25): H. uhlerii is decreasing in importance. Has been unusually bad in at least four parishes northwest of Alexandria. Less damage than usual in three parishes in the extreme northern end of the State.

Wisconsin. E. L. Chambers (July 3): Weather conditions seem ideal for wireworm damage and much corn in south and central Wisconsin had to be replanted. (July 30): Heavily infesting many potato and cornfields planted in marsh lands in southern Wisconsin.

Iowa. C. J. Drake (June 28): Reported from Allison, Strawberry Point, Palo, Lynnvillie, Rock Rapids, Ames, Marshalltown, and Cherokee. Larvae seriously injuring some fields of corn.

Nebraska. H. D. Tate (July 17): Request for control received from Cuming County on June 21. Melanotus cribulosus Lec. reported as damaging corn in both Nemaha and Colfax Counties on July 5.

California. R. E. Campbell (July 5): Linonius californicus Mann. reported as doing considerable damage in many beanfields in southern California.

SAY'S STINKBUG (Chlorochroa sayi Stal)

North Dakota. J. A. Munro (July 22): Unusually large number observed at Mandan in wheatfields. Reported as causing appreciable injury in wheat plots at Dickinson a few days ago, where they were observed at the rate of 10 to 12 per foot of row.

South Dakota. H. C. Severin (July 26): Flying to lights in large numbers in central South Dakota.

Oklahoma. F. E. Whitehead (July 24): Outbreak is the most outstanding that has occurred in this State recently. Reported as having caused exceedingly severe injury in the two westernmost counties of the Panhandle, ranging up to approximately 100 percent in some fields. First record of serious injury in the State.

Utah. G. F. Knowlton and F. C. Harnston (July 19): Severely injuring wheat on some farms east of Roosevelt, in the northeastern part of the State.

EUROPEAN EARWIG (Forficula auricularia L.)

Utah. G. F. Knowlton (June 28): Large nymphs very abundant at Farmington.

Washington. L. G. Smith (July 24): Reported as causing noticeable damage to flower and vegetable gardens in Puyallup, Pierce County. Nearly all adults. Parasites much more abundant than last year.

CEREAL AND FORAGE - CROP INSECTS

WHEAT

HESSIAN FLY (Phytophaga destructor Say)

Ohio. T. H. Parks (July 27): Wheat inspected in 34 counties; county infestations ranged from 0.6 to 11.4 percent of the straws carrying flaxseeds. Average for State was 4 percent, as compared with 20.5 percent in 1939. Fly population lowest since 1918.

WHEAT MIDGE (Thecodiplosis mosellana Gehin)

Pennsylvania. E. J. Udine (June 25): Found in nearly every head of wheat examined at Cabot, Butler County. Maturing grain beginning to show evidence of damage.

Indiana. J. J. Davis (July 26): More abundant than for many years, and some conspicuous loss in yields. First reports received this month. Reported from all parts of the State.

WHEAT JOINTWORM (Harmolita tritici Fitch)

Ohio. T. H. Parks (July 27): In 34 counties where wheat has been inspected this pest has increased in some counties and caused some loss of heads in a few fields. Average for the State was 8.7 percent, as compared with 7.25 percent 1 year ago.

WHEAT STEM MAGGOT (Meronyza americana Fitch)

Minnesota. A. G. Ruggles and assistants (July 8): Reported as causing considerable trouble in Wabasha, Wabasha County.

Nebraska. H. D. Tate (July 17): Damaging wheat in Gage County on June 19.

THRIPS (Thysanoptera)

Minnesota. A. G. Ruggles and assistants (July 8): Moderately abundant at Hastings. Wheat dried up in places. Immature insects abundant at bases of leaves. Very few adults on July 5.

CORN

CHINCH BUG (Blissus leucopterus Say)

Tennessee. G. M. Bentley (July 1): Occurring in great numbers at Ripley, Lauderdale County, where they destroyed 2 acres of oats and 3 acres of corn near the oats. This is the second outbreak in the State in the last 20 years.

Ohio. T. H. Parks (July 24): No serious outbreak has developed. Enough occurred in a wheatfield in Allen County to damage seriously several rows of corn adjoining the wheat. Not numerous enough elsewhere to cause concern.

Indiana. J. J. Davis (July 26): Late reports of local outbreaks in the northern part of the State still being received. This has been a most unusual season for chinch bugs. Weather conditions until recently have slowed up development. Infestations in eastern Indiana have centered in Huntington, Wells, Adams, and Blackford Counties. In western Indiana the heaviest and most general infestations have been in Benton and White Counties, local outbreaks occurring in Newton, Lake, Jasper, Pulaski, Marshall, and Fulton Counties to the north, and in Warren, Tippecanoe, Clinton, and Montgomery Counties to the south. Despite unfavorable weather there is a heavy carry-over in the larger area of the State, where the bugs overwintered successfully.

Illinois. W. P. Flint (July 26): Infestation is very spotted. Some 25 counties required control operations. Infestation in corn above average for this time of the year, and a heavy second brood may be expected with normal weather.

Missouri. L. Haseman (July 23): Heaviest infestations have appeared in the west-central and northwestern quarters of the State. Practically all general migration from small grains to corn has ceased.

Iowa. C. J. Drake (June 28): Found in outbreak numbers in 50 to 70 counties. Favorable conditions in the late summer of 1939 caused the infestation to become heavy and widespread in 3 or 4 tiers of southern counties, extending farther north in the western half of Iowa. Winter mortality in the infested counties ranged from 7 percent in the southeastern counties to 20 to 50 percent in the southwest and 80 to 90 percent in the northwest. Surviving population in the most heavily infested counties more than sufficient to produce offspring greater than the food supply in the small grainfields. Weather conditions during spring and early summer very favorable for migration to such fields. Egg laying began about the first week in June. Control operations going on in more than 50 counties. In a number of counties some injury was done to corn by overwintered adults. A small field of sweet corn near Ames almost entirely destroyed by such adults and their offspring, which developed in the cornfield.

Kansas. H. R. Bryson (July 25): A menace to corn and sorghum crops during the last month. Infestations heaviest in northeastern and southeastern Kansas. Control operations have kept the bugs down considerably. First generation now adult, and egg laying going on. Second-generation nymphs have begun to appear in sorghum fields. High soil temperatures reduced the numbers of bugs forced to migrate from wheat stubble to cornfields. In many instances migrations were of shorter duration than usual, owing to rapid and uniform maturity of small grains. Infestations worse in the vicinity of barley fields. Recorded in McPherson County as migrating from barley growing in pasture land adjoining cultivated fields.

Nebraska. H. D. Tate (July 17): Numerous requests for control received from Richardson, Nemaha, Pawnee, Johnson, Gage, Lancaster, Otoe, Cass, Sarpy, Douglas, Saunders, Dodge, and Washington Counties, where heavy infestations have developed in most of them. On July 15 most of the bugs were in the fourth or fifth instars or adult, and migration from small grains to corn and sorghum had been largely completed.

Texas. R. K. Fletcher (July 22): Reported as attacking St. Augustine grass on July 1 in Dallas County.

FALSE CHINCH BUG (Nysius ericae Schill.)

Iowa. C. J. Drake (June 28): Extremely abundant in a 20-acre cornfield near Clarinda, the population running from 300 to 500 per hill and totally destroying the corn plants. The field had been in soybeans the previous season and was weedy.

EUROPEAN CORN BORER (Pyrausta nubilalis Hbn.)

New Hampshire. J. G. Conklin (July 26): Very abundant throughout southern and central New Hampshire.

Massachusetts. A. I. Bourne (July 27): Development considerably later than in 1939, largely matching that of corn, which is 10 days to 2 weeks late. Larvae reported in peaches in Westboro, Worcester County, on July 6; also discovered penetrating apples on July 8 at Easton, in the northern part of Bristol County. Dropped fruit penetrated in both instances. Larvae supposed to have migrated from weeds growing alongside the orchards, since there was no corn in the immediate vicinity of either.

New York. N. Y. State Coll. Agr. News Letter (July 22): First-generation infestation light on Long Island, the heaviest averaging scarcely more than 2 borers per plant and negligible ear injury. In Columbia and Rensselaer Counties, eastern New York, infestations are unusually spotty, although some fields are seriously injured. Very serious injury observed in one section of Ulster County last week. Infestations in Albany County also variable, some fields showing serious injury. (July 29): In eastern New York borers are quite scarce in sweet corn fields in Rockland County, and in Ulster County larvae were observed in ripening tomato fruits.

Indiana. J. J. Davis (July 26): Emergence began on June 13 in northeastern Indiana, which is about normal, but it is reported that flight has been far from normal, and the number of moths taken in light traps small. The period June 13 to July 7 was not favorable to moth activity, but catches were large from July 7 to 10, the heaviest catch being 190 moths, on the night of July 7. Flight still in progress.

Wisconsin. E. L. Chambers (July 30): Scouting began on July 11, and up to July 25 newly hatched larvae were picked up on five farms in Sheboygan County, on six in Fond du Lac County, on nine in Racine County, on six in Kenosha County, and on one in Walworth County.

STALK BORER (Papaipema nebris nitela Guen.)

Alabama. J. M. Robinson (July 16): Reported on tomato at Brookside on June 10.

Indiana. J. J. Davis (July 26): Very abundant, especially in the northern half of the State. First reports were received on June 26; reports still coming in. In most instances, the hosts reported have been oats, corn, and wheat, scattered reports of vegetable and flower crops being received.

Wisconsin. E. L. Chambers (July 30): Potatoes, tomatoes, and corn infested in many sections of the southern half of the State.

Minnesota. M. W. Wing (July 15): Moderately abundant on corn and potato at Mila. Clarkfield, and Blue Earth.

CORN BILLBUGS (Calendra spp.)

Ohio. T. H. Parks (July 24): Sweet corn being stunted by larvae on July 15 in Erie County. Larvae of C. parvula Gyll. found burrowing in wheat straws near the soil surface in several counties. This injury was rather severe in Warren County.

Alabama. J. M. Robinson (July 16): C. maidis Chitt. reported on corn at Huron on July 3.

Iowa. C. J. Drake (June 28): The gray-colored billbug (C. aequalis Gyll.) destroyed part of a cornfield near Sabula. It bred in large numbers in a nearby swampy area, containing rank vegetation.

SEED-CORN BEETLE (Agonoderus lecontei Chaud.)

Iowa. C. J. Drake (June 28): This beetle destroyed 145 acres of corn in Carroll County during the last week of June. Other infestations on a smaller scale were reported at Danbury, Davenport, and Logan.

CORN SILK BEETLES (Luperodes spp.)

Alabama. J. M. Robinson (July 16): L. brunneus Crotch reported on July 12 as attacking corn at Carrollton, Geneva, and Tuscaloosa.

Mississippi. C. Lyle (July 25): Specimens of L. varicornis Lec., feeding on corn received from Copiah, Grenada, Itawamba, Jones, Perry, and Smith Counties; specimens from cotton plants received from Jones and Tippah Counties. Unusually abundant this season.

Louisiana. C. O. Eddy (July 25): L. brunneus is declining in numbers, after very active season in the sandhills section north of Alexandria.

CORN ROOTWORM (Diabrotica longicornis Say)

South Dakota. H. C. Severin (July 26): Damage reported as occurring in the Blount Fourche area.

CORN LEAF APHID (Aphis maidis Fitch)

Kentucky. W. A. Price (July 25): Very common on corn in central Kentucky.

Nebraska. H. D. Tate (July 17): A heavily infested sorghum plant was received on July 11 from Colfax County.

CORN ROOT APHID (Anuraphis maidi-radicis Forbes)

Iowa. H. E. Jaques (July): Light, scattered infestations found in eight counties mostly in central Iowa.

RED SPIDERS (Tetranychus spp.)

Utah. G. F. Knowlton, et al. (July 19): Corn severely damaged at North Logan.
(July 27): Injury to corn is severe in some cornfields at Moab.

ALFALFA

ALFALFA WEEVIL (Hypera postica Gyll.)

Wyoming. J. C. Hamlin (July 3): Larvae and adults collected in the Saratoga or Encampment areas of Carbon County on June 29. (Det. by W. H. Anderson and L. L. Buchanan.)

Utah. C. J. Sorenson (July 22): Less damage caused to alfalfa generally than in 1939 in Box Elder, Cache, Juab, and Millard Counties.

California. A. E. Michelbacher (July 23): On July 22 in the northwestern part of the San Joaquin Valley the number of larvae collected per 100 sweeps of the net for the different fields ranged from 4 to 23, and the number of adults from 0 to 14. In the alfalfa field adjacent to the San Francisco Bay the larval count ranged from 0 to 47, and the adult count from 0 to 2. Parasitization by Bathyplectes curculionis Thoms., based on rearing from last-stage larvae collected in the field on July 9, was slightly more than percent for the San Francisco Bay region, and 0 for the San Joaquin Valley.

STRIPED FLEA BEETLE (Phyllotreta vittata F.)

Colorado. G. M. List (July 23): Quite numerous on alfalfa this spring and summer. Noticeable injury to the hay crop in some instances, and seed production reduced by the clipping of flowers.

CLOVER ROOT CURCULIO (Sitona hispidula F.)

Oregon. R. L. Post (June 27): Collected today from an alfalfa field near Dundee, Yamhill County. (Det. by L. P. Rockwood.)

ALFALFA CATERPILLAR (Colias eurythone Bdv.)

California. A. E. Michelbacher (July 23): Larval population high in some fields in the northwestern part of the San Joaquin Valley. As many as 2,100 larvae collected per 100 sweeps of the net. In a number of fields the count neared 1,000.

PLANT BUGS (Hemiptera)

Florida. J. R. Watson (July 22): Cowpeas severely damaged by plant bugs, including Piezodorus guildinii Westw., Catorhintha guttula F., Nezara viridula L., and Leptoglossus phyllopus L.

Colorado. G. M. List (July 23): Many plantings of alfalfa show a distorted growth, owing to feeding. Seed production seriously interfered with in northern Colorado.

Utah. C. J. Sorenson (July): Moderate to heavy infestations in most alfalfa fields in Cache, Box Elder, and Willard Counties. Some bud injury now showing in alfalfa-seed fields.

A MEMBRACID (Campylenchia latipes Say)

Utah. G. F. Knowlton (July 9): Alfalfa and sweet clover damaged at Honeyville, Willard, and Utah Hot Springs.

COWPEAS

COWPEA CURCULIO (Chalcodermus aeneus Boh.)

Georgia. T. L. Bissell (July 11): Becoming normally abundant at Experiment central Georgia, on the first pods to develop. Almost full-grown grubs found today, a large number being parasitized.

VETCH

VETCH BRUCHID (Bruchus brachialis Fahracus)

Washington. L. G. Smith (July 10): Adults collected in every vetch field surveyed in Clark County on June 28, averaging 5 weevils per 10 sweeps of the net. No eggs found on pods.

F R U I T I N S E C T S

PEACH TWIG BORER (Anarsia lineatella Zell.)

Utah. G. F. Knowlton (July 1): Apricot fruits being injured in several parts of Weber County.

SAN JOSE SCALE (Aspidiotus perniciosus Comst.)

Mississippi. C. Lyle, et al. (July 25): Injury to untreated fruit trees reported from the southwestern part of the State and from the Meridian district.

Washington. E. J. Newcomer, et al. (July 18): Found on the fruit of pear in 15 of 42 orchards examined in Yakima County, indicating that it is quite common this season.

A LACEBUG (Corythucha cydoniae Fitch)

Maryland. E. H. Siegler (July 24): Found on quince foliage at Beltsville on July 23. (Det. by H. G. Barber.)

Mississippi. C. Lyle, et al. (July 25): Reported as having practically defoliated flowering quince and pyracantha in some instances in Jackson County.

Washington. E. J. Newcomer (July 18): Found in 4 out of 34 orchards in Yakima County on 3 varieties of pear.

BUFFALO TREEHOPPER (Ceresa bubalus F.)

Washington. E. J. Newcomer, et al. (July 20): Very common in some pear orchards in the Yakima Valley, particularly if cover crops of alfalfa are present.

A TARANTULA HAWK (Pepsis sp.)

Nevada. G. G. Schweis (July 20): Reported from southern Nevada that adults were seriously damaging fruits, such as grapes and peaches.

APPLE

CODLING MOTH (Carpocapsa pomonella L.)

New York. D. W. Hamilton (July 24): Bait-trap captures very light from June 24 to July 1 at Poughkeepsie, moderately heavy from July 2 to 15. Since July 15 captures have been light, but are beginning to increase. First-brood moths just beginning to emerge. Entrances in fruit have increased during the last 10 days.

N. Y. State Coll. Agr. News Letter (July 29): In eastern New York there has been considerable activity for the last 2 weeks in Rockland County, where injury is much more extensive than last year, 50 to 60 percent of injured apples being infested. A few larvae have left the apples. Damage negligible in Ulster and Clinton Counties. In western New York second-brood adults have been flying for several days, and the last of the first-brood eggs are hatching. In the Lake zone the high point of first-brood larval activity has been in progress during the last week. Considerable damage to pear in Orleans County and loss in Niagara County, where apples have been left rather quickly, owing to the extremely hot weather.

Delaware. L. A. Stearns (July 23): First brood lightest recorded for the last 10 years. Second brood just beginning to hatch.

Virginia. A. M. Woodside (July 20): Infestation of apples lighter than for the last 3 years at this season in Augusta County. Emergence of first-brood moths began late, and bait-trap catches are just beginning to indicate their presence.

Ohio. T. H. Parks (July 24): Spring-brood emergence and bait-pan catches at Columbus were long drawn out, extending from May 21 to July 23. Peaks occurred on June 3 and July 2. No second-brood moths have emerged.

Michigan. R. Hutson (July 24): Heavy flight of first-brood moths appeared from July 15 to 20. Reported from all over the State.

Indiana. L. F. Steiner (July 3): First-brood counts made at Vincennes during the last week on 190 trees in 2 orchards show infestations ranging from 0 larvae to as many as 42 per 100 apples. Percentage of injured fruit is well above normal, and higher than in 1939, owing partly to the light crop. About 15 percent of all entrances were fresh. Adults of the first brood began emerging not later than July 1. (July 25): Treatment of 10 trees in the Vincennes area yielded 65 adults, 5 less than a week ago. The peak is believed not to have occurred. Eggs are hatching in considerable numbers.

Illinois. W. P. Flint (July 26): The prolonged hatch of first-brood eggs has resulted in a heavier infestation than normal in most commercial orchards.

Missouri. L. Haseman (July 23): The second brood has been more drawn out than for many years past. Peak of emergence for the southern and northern parts of Missouri occurred July 20 to 25. Larvae of the second brood have been entering since early in July, and damage is generally less serious than in a number of years.

South Dakota. H. C. Severin (July 26): About the usual amount of damage to apples.

E. J. Newcomer (July 24): First-brood moths began emerging on June 28 at Yakima, and an increase of eggs was noted from July 6 to 9.

Oregon. B. G. Thompson (June 24): No peak flights in the Willamette Valley, but eggs have been laid on apple and pear almost every evening since May 20, making control measures difficult.

EYE-SPOTTED BUDMOTH (Spilonota ocellana D. & S.)

New York. N. Y. State Coll. Agr. News Letter (July 22): In western New York have been hatching in the vicinity of Lyndonville since about July 12. Olcott eggs are prevalent and just beginning to hatch. Observations on July 16 showed most eggs to be freshly laid, a few being advanced in growth to nearly hatching. Peak of moth emergence not reached in Somerset, where eggs are not numerous and all observed were freshly laid. Now hatching rapidly in infested orchards in Orleans County.

Indiana. L. F. Steiner (July 3): Some injury from young larvae now occurring in the Vincennes area.

FRUIT TREE LEAF ROLLER (Cacoecia argyrospila Walk.)

Missouri. L. Haseman (July 23): Infestation has moved westward across the State, particularly throughout the central part. Moth emergence was practically complete by July 1. June catch at Columbia unusually high. Reported from southeastern Missouri that there were only about 10 percent as many moths in June as a year ago, and that young larvae in any considerable numbers are blown only about 150 feet.

Nebraska. H. D. Tato (July 17): Found attacking apple in Custer County on July 1 and in Nance County on July 6. Also reported as having defoliated several large boxelder trees in Brown County on June 20.

PISTOL CASEBEARER (Colcophora malivorella Riley)

Delaware. L. A. Stearns (July 20): Larvae just hatched observed at Camden; more abundant than normally.

RED-HUMPED CATERPILLAR (Schizura concinna A. & S.)

Tennessee. G. M. Bentley (July 9): Found eating the leaves of apple trees at Rutherford, Gibson County.

APHIDS (Aphididae)

Massachusetts. A. I. Bourne (July 27): Rosy apple aphid (Anuraphis roseus Baker) a very serious pest in the southeastern section of Cape Cod. Although migration has taken place, evidence of damage is plentiful. The green apple aphid (Aphis pomi Deg.) is present in serious abundance in many orchards, infestations being the heaviest for years, and in many orchards almost all of the tip growth is infested.

Connecticut. P. Garman (July 22): Infestation of apples by A. pomi in New Haven County has continued to increase throughout June and July.

New York. N. Y. State Coll. Agr. News Letter (July 15): In eastern New York A. pomi was abundant on terminal growth and found in small numbers on the fruit during the last week in June in Ulster County. In Clinton County green aphids are building up a moderate population on a few vigorous trees. Rosy aphids still present and causing a good deal of damage in Rockland and Ulster Counties. (July 22): In western New York A. pomi is present on terminals in considerable numbers in Niagara County, and rosy aphids occurred there in sufficient numbers to cause damage in some orchards, some still being found on fruit. (July 29): Green aphids no longer are serious in Clinton County, natural enemies having held them in check.

Delaware. L. A. Stearns (July 19): Rather severe infestation of green apple aphids in orchard at Camden reported.

Ohio. T. H. Parks (July 24): A sizable outbreak of rosy apple aphids developed and some damage occurred in many orchards, although eggs of apple aphids were very scarce in the spring. Predators helped to reduce the number of aphids.

Indiana. L. F. Steiner (July 11): A. pomi seems to be increasing in the Vincennes area, despite the hot, dry weather. No serious damage observed.

Utah. G. F. Knowlton (July 9): Woolly apple aphid (Eriosoma lanigerum Hausn.) less injurious than during recent years, often being heavily parasitized when abundant.

Washington. M. A. Yothers (July 18): A very heavy infestation of E. lanigerum, found at Yakima, had been almost completely parasitized by Aphelinus mali Hald. Most of the parasites had emerged by the end of June.

WHITE APPLE LEATHOPPER (Typhlocyba pomaria McAtee)

Connecticut. P. Garman (July 22): Very severe infestations in several large apple orchards in New Haven County.

APPLE MAGGOT (Rhagoletis pomonella Walsh)

Massachusetts. A. I. Bourne (July 27): Flies began emerging somewhat earlier than usual. Some indication of a slackening of the emergence indicates the possibility that the peak has been passed.

New York. N. Y. State Coll. Agr. News Letter (July 1): Fly emergence in cages at Poughkeepsie was halted by unfavorable weather conditions during the week. No flies taken between June 21 and 28. First fly found in Rockland County on June 26. (July 29): Maggot-infested apples found this week in Rockland County.

Michigan. R. Hutson (July 24): Adults recovered at Bellaire on July 22.

EUROPEAN RED MITE (Paratetranychus pilosus C. & F.)

Massachusetts. A. I. Bourne (July 27): During the last 2 weeks severe infestations have occurred throughout the State, until at present considerable bronzing has occurred, and further injury is threatened.

Connecticut. P. Garman (July 22): General outbreak, which is doing considerable damage in many apple orchards.

New York. N. Y. State Coll. Agr. News Letter (July 29): Considerable damage caused in a few scattered blocks of apples in Ulster County. In western New York, red mites are beginning to build up in some prune blocks in Orleans County.

PEACH

PLUM CURCULIO (Conotrachelus nemophar Hbst.)

Delaware. L. A. Stearns (July 23): Probable peak of emergence of first-brood adults occurred on July 16, as recorded by weekly jarring of peach trees. Unusually abundant. Few peach drops infested with first-brood grubs, owing to very heavy June drop.

Virginia. A. M. Woodside (July 20): First-brood adults began to emerge on about July 5, and peak of emergence occurred about July 13 in Augusta County. Females contained no eggs.

Georgia. O. I. Snapp (July 22): Second-generation eggs began to form in new females on July 5 at Fort Valley, central Georgia, but there has been no deposition. Harvest of Elberta peaches began on July 15. This is the first year since 1923 that second-generation eggs have not been ready for deposition by the beginning of this harvest, one-half of the crop having already been harvested without a second-brood attack.

Mississippi. C. Lyle, et al. (July 25): Adults said to be numerous in northwestern Mississippi. Light injury reported from the Durant and Meridian areas, and untreated trees reported as showing considerable injury in southwestern Mississippi.

Minnesota. M. W. Wing (July 15): Moderately abundant on apple at Rochester.

Missouri. L. Haseman (July 23): Stone plums and some early apples quite severely stung earlier in the season. Since July 20 most of the larvae observed in central Missouri have been from half to almost full grown.

South Dakota. H. C. Severin (July 26): Usual amount of damage being done to plums.

ORIENTAL FRUIT MOTH (Grapholitha molesta Busck)

Connecticut. P. Garman (July 22): Infestation of peaches apparently less at present than in 1939.

New York. N. Y. State Coll. Agr. News Letter (July 22): Causing twig injury to peaches in western New York.

Delaware. L. A. Stearns (July 23): First-brood larvae found parasitized as follows: Sussex County, 55.1 percent; Kent County, 80.2 percent; and New Castle County, 62.4 percent. Average for State is 67.5 percent. Parasitization on the eastern side of Sussex County was very low, and there was considerable fruit infestation for the first time in several years.

Mississippi. C. Lyle, et al. (July 25): Injured peach twigs received from Leake County, and reports of similar injury received from Attala, Holmes, and Madison Counties, and from northwestern Mississippi.

Missouri. L. Haseman (July 23): In southeastern Missouri third-brood moths began to appear on July 4, the peak of activity occurring around July 15. A preliminary check on parasitization of the light second-brood larvae shows comparatively few parasites emerging.

PEAR

PEAR PSYLLA (Psylla pyricola Foerst.)

New York. N. Y. State Coll. Agr. News Letter (July 29): Rather abundant and threatening injury in Ulster County. In western New York pear psyllas are now largely in the hard-shell and adult stages in Niagara County, where considerable injury has occurred in some orchards.

PEAR LEAF BLISTER MITE (Eriophyes pyri Pgst.)

Washington. E. J. Nowcomer, et al. (July 18): Found in 19 out of 42 pear orchards examined in Yakima County.

A LEAF MIDGE (Dasyneura pyri Boucho)

Connecticut. E. P. Felt (July 24): Specimen of injury received from Noroton Heights, where it is evidently abundant.

CHERRY

CHERRY FRUITFLY (Rhagoletis cingulata Loew)

New York. D. W. Hamilton (July 24): A few adults taken in emergence cages in Columbia County as late as July 7, which is about 1 week later than usual.

Oregon. S. C. Jones (June 24): Peak of emergence reached in earliest locations in the Willamette Valley on June 3, and in the later locations on June 11. Eggs found in laboratory on June 5 from flies that emerged on May 22. Eggs found in field on June 13. First larvae found in field on June 17.

BLACK CHERRY APHID (Myzus cerasi F.)

Utah. C. J. Sorenson (June 15): Infestation at Brigham during May and June excessive, fruit in some orchards being rendered unmarketable. Infestation has now largely subsided.

PLUM

RUSTY PLUM APHID (Hysteronoura setariae Thos.)

Minnesota. M. W. Wing (July 15): Scarce to moderately abundant on plum at Anoka, Foreston, and Kiester.

RASPBERRY

RASPBERRY CANE BORER (Oberoa bimaculata Oliv.)

New Hampshire. J. G. Conklin (July 26): Much more prevalent this year than in 1939.

Minnesota. M. W. Wing (July 15): Moderately abundant on raspberries at Gaylo and Black Duck.

RED SPIDERS (Tetranychus spp.)

Utah. G. F. Knowlton (July 6): Red raspberry foliage seriously damaged at Kamas. Foliage on some parts of the field largely dried up and brown. (July 9): Light injury caused to raspberries at Brigham.

CURRENT

GOOSEBERRY FRUITWORM (Zophodia convolutella Hbn.)

Utah. G. F. Knowlton (July 3): Red currants damaged at Provo.

A PSYLLID (Arytaina ribesiae Crawford.)

Utah. G. F. Knowlton (July 9): Light injury caused to black currants in northern Utah. Seldom severely injurious in general, but conspicuous injury occasionally caused to a few bushes.

CURRENT APHID (Capitophorus ribis L.)

Utah. G. F. Knowlton (July 2): Red currant foliage damaged in northern Utah.

CURRENT FRUITFLY (Epochra canadensis Loew)

Utah. G. F. Knowlton (July 3): Black currants infested at Perry and Hooper.

GRAPE

GRAPE BERRY MOTH (Polychrosis viteana Clem.)

New York. N. Y. State Coll. Agr. News Letter (July 29): Occasionally found in some vineyards in Ulster County, eastern New York.

Georgia. T. L. Bissell (July 19): A few berries ruined in bunch grapes, less than one per bunch, at Experiment, central Georgia. Only two small larvae found; most of the infested fruit deserted.

Michigan. R. Hutson (July 24): Heavy flight from July 8 to 20 at Paw Paw, Lawton, and Benton Harbor in southern Michigan.

GRAPE LEAF FOLDER (Desmia funeralis Hbn.)

Mississippi. C. Lyle, et al. (July 25): Reported as numerous in Grenada and Tallahatchie Counties.

Missouri. L. Haseman (July 23): Since the middle of July there has been evidence of pick-up in the numbers of grape leaves folded, especially on untreated vines, in central Missouri.

GOLDSMITH BEETLE (Cotalpa lanigera L.)

Missouri. L. Haseman (July 23): A few complaints of serious defoliation of home vineyards received from central Missouri. Since July 20 considerable numbers have been coming to lights at night at Columbia.

A GRAPE ROOTWORM (Fidia longipes Melsh.)

Arkansas. D. Isely (July 23): Adults attracted more attention in northwestern Arkansas than in any year since 1928. In some vineyards they were abundant enough to cause damage to foliage.

GRAPE LEAFHOPPER (Erythroneura comes Say)

New York. N. Y. State Coll. Agr. News Letter (July 15): Hatching in Chautauque County, western New York, but observations indicate that the infestation is not so great as last year. (July 22): Nymphs have been hatching rapidly in Niagara County, and others are still appearing. Season is a week or more behind last year. (July 29): Hatching about completed in Ulster County, eastern New York, but nymphs seem less numerous than usual. Very abundant in Niagara County, and some nearly in the adult stage.

North Dakota. J. A. Munro (July 21): Very abundant at Mandan and Garrison; scarce to moderately abundant at Fargo and Jamestown.

Kansas. H. R. Bryson (July 30): Reported as abundant on grapes at Medicine Lodge.

Nebraska. H. D. Tate (July 17): Request for control information received from Platte County on July 3. Taken from woodbine in York County on July 10.

Utah. G. F. Knowlton and F. O. Harmston (July 27): Grape foliage severely damaged at Moab; 75-percent defoliation caused to some varieties.

GRAPEVINE APHID (Aphis illinoisensis Shim.)

Arizona. P. Simmons (May 18): Occasional cane tips heavily infested at Phoenix. (Det. by P. W. Mason.)

PECAN

PECAN WEEVIL (Curculio caryae Horn)

Georgia. T. L. Bissell (July 18): Beginning to emerge, one punctured nut found in each of two pecan orchards at Milnor and Griffin, central Georgia.

PECAN CARPENTER WORM (Cossula magnifica Stkr.)

Mississippi. C. Lyle, et al. (July 25): Heavy infestation of pecan trees reported from George County.

PECAN PHYLLOXERA (Phylloxera devastatrix Perg.)

Mississippi. C. Lyle, et al. (July 25): Galls on pecan observed at several places in the southern end of the Yazoo-Mississippi Delta.

A MITE (Eriophyes caryae Keifer)

Oklahoma. E. Hixson (July 5): Found on pecan leaves. This condition seems widespread in pecans in eastern Oklahoma and is causing considerable damage. (Det. by H. H. Keifer.)

FILBERT

A FILBERT MOTH (Melissopus latiferreanus Wlsm.)

Oregon. B. G. Thompson (June 25): Adults are beginning to emerge in filbert orchards in the Willamette Valley. Apparently slightly more numerous than last year.

CITRUS

ORANGE TORTRIX (Argyrotaenia citrana Fern.)

California. R. S. Woglum (July): Small larvae appeared during June, but not in large numbers; beginning to puncture ripe fruit, but little drop caused.

BLACK SCALE (Saissetia oleae Bern.)

California. R. S. Woglum (July): In most areas of southern California hatch is more advanced than at this time last year. In interior areas development has been slower. In the coastal double-brooded areas this scale is generally more reduced in numbers than for several years. On the other hand, in such interior areas as western San Bernardino, and in parts of Riverside and interior Los Angeles Counties, there has been an increase, although not serious enough to affect production, with the exception of occasional groves. Severe condition exists in many orchards from Cucamonga eastward to Redlands.

CALIFORNIA RED SCALE (Aonidiella aurantii Mask.)

California. R. S. Woglum (July): Population built up during the winter and is now heavier generally than a year ago. Summer hatch, especially in the interior, is early and already moving onto new fruit in some orange orchards. Similar conditions observed on lemons.

PURPLE SCALE (Lepidosaphes beckii Nawn.)

Louisiana. I. J. Becnel (July 25): Infestations general but not so severe as at this time last year. Treatments have aided materially in reducing the population.

California. R. S. Woglum (July): First hatch now so complete that control may be effected.

CITRUS MEALYBUG (Pseudococcus citri Risso)

Florida. H. Spencer (July 22): Appearing on the lower east coast, especially in grapefruit groves.

CITRUS RUST MITE (Phyllocoptes oleivorus Ashm.)

Louisiana. I. J. Becnel (July 25): Citrus in Plaquemines Parish not being so severely damaged as in 1939. Infestations have not increased much this season.

FIG

A SCOLYTID (Stephanoderes ficus Hopk.)

Texas. H. J. Reinhard (July 13): Noticeable damage caused to figs in the vicinity of Dickinson. (Det. by M. W. Blackman.)

TRUCK - CROP INSECTS

BLISTER BEETLES (Meloidae)

New Hampshire. J. G. Conklin (July 26): Epicauta pennsylvanica Deg. and E. cinerea Forst. have been particularly active in the central part of the State and along the Connecticut River Valley. Potato crops have been damaged.

Vermont. H. L. Bailey (July 29): E. pennsylvanica and E. cinerea more abundant than usual, particularly on potatoes.

New York. M. D. Leonard (July 17): Considerable blister beetle infestation reported on raspberries and roses in a garden at Buffalo.

N. Y. State Coll. Agr. News Letter (July 29): Blister beetles have attacked potatoes in some places in western New York.

M. Crispino (July 20): Macrobasis fabricii Lec. found attacking Italian beans on July 16 at Painted Post. (Det. by H. S. Barber.)

South Carolina. F. Sherman and W. C. Nettles (July 29): E. pennsylvanica was severe on crotalaria in Chesterfield County.

Tennessee. G. M. Bentley (July 9): E. vittata F., E. pennsylvanica, and E. cinerea quite numerous in the western counties.

Alabama. J. M. Robinson (July 16): Striped blister beetle (E. vittata) reported on cotton at Red Bay and Lowndesboro on June 11, and on vegetables at Russellville on June 17.

Mississippi. C. Lyle, et al. (July 25): Specimens of E. lemniscata F. received from Clarke, Grenada, Lafayette, Yalobusha, and Yazoo Counties, where they were attacking potatoes, tomatoes, and beans. Reports of this species as attacking garden crops received from Meridian area, and said to be abundant on tomatoes and flowers in Panola and Tate Counties.

Michigan. R. Hutson (July 24): E. cinerea sent in from Yale.

M. D. Leonard (July 15): Heavy infestation reported in garden at Detroit. Several kinds of flowers being eaten.

Wisconsin. E. L. Chambers (July 3): E. pennsylvanica very abundant throughout the State, feeding on alfalfa, potatoes, and garden crops.

Minnesota. M. W. Wing (July 15): M. unicolor is moderately abundant on a caragana tree at Ivanhoe. Moderately abundant at Elk River, Clarkfield, and Minneapolis.

A. G. Ruggles and assistants (July 5): Very abundant in Clay County. In Marshall County beetles were moderately abundant on alfalfa and sweet clover. Caragana hedges stripped. Attacking alfalfa and garden at Mahanomen, Mahanomen County.

Iowa. H. E. Jaques (July): Found in many counties over the State.

North Dakota. J. A. Munro (July 21): Fairly generally distributed and causing serious defoliation of potatoes, caragana hedges, and green ash. Spotted gray species predominates on the potatoes. More than six species were encountered in the Oakes, Jamestown, Bismarck, and Minot vicinities between July 17 and 19.

South Dakota. H. C. Severin (July 26): Especially abundant in the Rosebud area.

Kansas. H. R. Bryson (July 25): Epicauta spp. abundant in many western counties. Injury to leaves of young Chinese elm trees at Jewell.

Nebraska. H. D. Tate (July 17): Reported as injuring garden crops, including potatoes, in Saline, Clay, Merrick, Gosper, Buffalo, Custer, Phelps, and Lincoln Counties during the period June 16 to July 15, inclusive. A specimen of M. unicolor was sent in from Boone County with the report that it had been found attacking a locust tree. Specimens of E. cinerea, taken from an alfalfa field in Greeley County, were sent in on June 19.

Utah. G. F. Knowlton (July 15): Spotted blister beetle (E. maculata Say) observed in damaging abundance in sugar-beet and alfalfa fields in several northern localities during the last few weeks. (July 26): The infestation of Epicauta sp., damaging alfalfa at Clearfield, was very heavy.

Washington. L. G. Smith (July 3): Blister beetles reported for the first time on June 28 in Yakima County. Attacking a privet hedge in the South Nob Hill district, but no serious damage.

CUCUMBER BEETLES (Diabrotica spp.)

New Hampshire. G. J. Conklin (July 26): D. vittata F. very abundant.

Vermont. H. L. Bailey (July 29): D. vittata very abundant in central part of State.

Massachusetts. A. I. Bourne (July 27): D. vittata appeared unusually late and have been fewer than normal in most cases. Heavy concentration in cucumber or melon fields reported. Infestation appears to be much more spotty than usual.

Virginia. A. M. Woodside (July 20): D. duodecimpunctata F. was feeding on leaves of lima beans and pods of snap beans at Staunton.

Mississippi. C. Lyle, et al. (July 25): D. duodecimpunctata reported as injuring roses in Lee County and dahlias in the Meridian area. D. duodecimpunctata and D. vittata reported as injuring squash, cucumbers, and cantaloups in Calhoun, Grenada, Yalobusha, Attala, and Sunflower Counties, in the Meridian and Poplarville districts, and in the northwestern part of the State.

Ohio. T. H. Parks (July 24): Striped cucumber beetles very abundant generally this summer and have caused cucumber and melon growers a great deal of trouble. Still abundant in blossoms, and bacterial wilt disease is beginning to appear.

E. W. Mendenhall (July 25): D. duodecimpunctata is causing a good deal of damage to cucumber vines in Franklin County.

Michigan. M. D. Leonard (July 14): D. vittata reported as doing considerable damage to several kinds of garden flowers in a garden at Detroit.

Wisconsin. E. L. Chambers (July 30): Striped cucumber beetle very abundant in gardens of southern Wisconsin, infesting principally cucumbers, melons, and squash.

Missouri. L. Haseman (July 23): Fewer complaints than usual received on striped and spotted cucumber beetles, but larvae of the latter began to show up on July 22 in bottom corn in southeastern Missouri. Fewer beetles than usual throughout central Missouri.

Iowa. H. E. Jaques (July): D. vittata reported as scattered throughout the State.

Nebraska. H. D. Tate (July 17): Striped cucumber beetle attacking cucumber plants in Phelps County on July 3 and in Saline and Lancaster Counties on July 9.

California. A. E. Michelbacher (July 23): D. soror Lec. caused some localized damage to fruit at Brentwood. Large populations encountered in some orchards. As many as 1,250 collected from a single tree, and in a few orchards the average number per tree ranged between 400 and 500.

R. E. Campbell. (July 24): Heavy infestation of D. trivittata Mann. and D. soror reported as having caused widespread injury to melons, vines, and vine roots during June in the Imperial Valley.

A SCARABÆID (Pleurophorus ventralis Horn)

Alabama. J. M. Robinson (July 16): Reported on peas and peanuts at Clayton on July 9.

CARROT BEETLE (Ligyrus gibbosus Deg.)

Indiana. J. J. Davis (July 26): Reported as attacking sweet sultan roots at Mulberry, central Indiana, on June 29.

South Dakota. H. C. Severin (July 26): Flights are very heavy over most of the State at the present time.

Nebraska. H. D. Tate (July 17): Attacking carrot and parsnip plants and marigolds in Adams County on June 19.

RHUBARB CURCULIO (Lixus concavus Say)

Ohio. T. H. Parks (July 24): Larvae and adults reported as seriously injuring rhubarb at Bridgeport, Belmont County.

Michigan. R. Hutson (July 24): Numerous at Allegan and Dearborn.

POTATO STALK BORER (Trichobaris trinotata Say)

Indiana. J. J. Davis (July 26): Damaging eggplants at Columbus, south-central Indiana, on July 15.

MELON APHID (Aphis gossypii Glov.)

Ohio. T. H. Parks (July 24): Causing moderate damage to cucumber plantings on two truck farms 15 miles west of Cleveland, Lorain County, on July 20.

Oklahoma. F. E. Whitehead (July 24): Severe in truck-growing area near Muskogee, particularly in cantaloups.

Nebraska. H. D. Tate (July 17): Heavy infestations observed on cucumber vines in Hitchcock County on June 26.

POTATO AND TOMATO

COLORADO POTATO BEETLE (Leptinotarsa decemlineata Say)

Washington. L. G. Smith (July 17): Fifteen percent of leaf area of potatoes on a ranch in Kittitas County reported as destroyed by first-generation adults on July 9. More than 15 times as numerous as last month and much more numerous than last year.

POTATO FLEA BEETLES (Epitrix spp.)

New York. N. Y. State Coll. Agr. News Letter (July 29): First generation causing little damage in Long Island. (July 29): Less than usual amount of damage in Cortland County, western New York. About the same as last week in Genesee County.

Michigan. R. Hutson (July 24): E. cucumeris very common at Kalamazoo, Paw Paw, and Benton Harbor.

North Dakota. J. A. Munro (July 21): Abundant at Fargo; scarce at Park River on July 10.

South Dakota. H. C. Severin (July 26): Especially bad on potatoes and tomatoes in eastern part of State.

Utah. G. F. Knowlton (July 9): Damaging potato foliage at Millville and Logan. (July 19): Caused moderate injury to potatoes in a number of Weber County localities.

- Nevada. G. G. Schweis (July 29): Causing some damage in the Lovelock area.
- Washington. L. G. Smith (July 10): County-wide infestation reported on July 1 in Wahkiakum County. Potatoes and other root crops were being severely damaged.

TOMATO FRUITWORM (Heliothis armigera Hbn.)

- South Carolina. F. Sherman and W. C. Nettles (July 29): Damage severe on early crop of tomatoes.
- Mississippi. C. Lyle et al. (July 25): Reported as causing serious damage to tomatoes generally.
- Kentucky. W. A. Price (July 25): Some injury to early tomatoes at Lexington.
- Washington. Ortho News (July 22): Reported as attacking tomato fruit in plantings near Yakima.
- California. A. E. Michelbacher (July 23): Appearing in tomatoes in northern section of State. Infestation scarce, although it runs to 4 percent in some places.

HORNWORMS (Protoparce spp.)

- Utah. G. F. Knowlton, et al. (July 2): Tomato hornworm was causing moderate damage to tomatoes in two fields examined at Utah Hot Springs, Weber County. (July 15): Were defoliating from 2 to 5 percent of tomato plants examined in fields near Tremonton and Perry.

POTATO LEAFHOPPER (Empoasca fabae Harr.)

- New York. N. Y. State Coll. Agr. News Letter (July 29): Not numerous on Long Island. Nymphs of first generation are in second and third instars. (July 29): In Genesee County, western New York, nymphs of various instars were noticed causing some damage to potatoes.
- Kentucky. W. A. Price (July 25): Very abundant in central Kentucky in the middle of month. Both spring-sown and old plantings of alfalfa reported as injured from several counties.
- Iowa. H. E. Jaques (July): Scattered infestations throughout State.
- Kansas. H. R. Bryson (July 30): Abundant late in June and during July. Caused considerable tipburn to potatoes.
- North Dakota. J. A. Munro (July 21): Moderately abundant and fairly generally distributed.
- South Dakota. H. C. Severin (July 26): Causing considerable damage to potatoes over the State, at times killing entire plantings.

Nebraska. H. D. Tate (July 17): Reported as damaging potato in Douglas and Dodge Counties on July 2. Also reported as causing injury to beans in Otoe and Clay Counties on June 28 and July 2, respectively.

A LEAFHOPPER (Empoasca filamenta De L.)

Utah. G. F. Knowlton (July 9): Light injury on potatoes at Ogden and Logan.

POTATO PSYLLID (Paratrioza cockerelli Sulc)

North Dakota. J. A. Munro (July 21): Few taken at Bismarck and Minot between July 17 and 19.

Colorado. G. M. List (July 23): Less numerous than usual on tomatoes in northern Colorado. No serious psyllid yellows have developed.

Utah. G. F. Knowlton (July 26): Injury has been moderate to scarce.

POTATO APHID (Macrosiphum solanifolii Ashm.)

New York. N. Y. State Coll. Agr. News Letter (July 29): Almost completely disappeared on Long Island during week ended July 20. Predatism and parasitization became dominant. Serious injury produced during period of abundance but very few remaining. In western New York, in Genesee County, a few can be found.

Utah. G. F. Knowlton (July 9): Injuring white wild geranium in canyon above Huntsville.

BEANS

MEXICAN BEAN BEETLE (Epilachna varivestis Muls.)

New Hampshire. J. G. Conklin (July 26): Rather scarce in southeastern New Hampshire, but abundant in central part of State.

Connecticut. M. P. Zappe (July 23): Injury in town of Hamden reported as light on beans, as compared with previous years.

New York. N. Y. State Coll. Agr. News Letter (July 22): Not so numerous generally over the State as last year. In most places up-State the first brood of larvae is from one-half to two-thirds grown. Somewhat destructive on Long Island; moderately destructive on snap beans in the Hudson Valley; and destructive in spots in the Ontario Lake counties; in Onondaga County grubs are very scarce; less abundant in Monroe County than last year; scarce in Niagara County; and in Erie County fields of snap beans show from 2 to 5 percent of plants infested, with grubs one-half to two-thirds grown.

South Carolina. F. Sherman, et al. (July 29): Very severe early in season. Some indications of subsidence during the recent hot weather.

Georgia. T. L. Bissell (July): Pupae were abundant on bean leaves at Experiment, central Georgia, on June 19, and new adults emerging.

Tennessee. L. B. Scott (July 10): Severe damage noted in snap and lima beans in north-central part of State.

G. M. Bentley (July 26): Reported as doing serious damage to bunch beans in Trezevant section of Carroll County on July 6. Present in several parts of State.

Alabama. J. M. Robinson (July 16): Reported on beans at Myrtlewood, Andalusia, and Auburn on July 3.

Mississippi. C. Lyle, et al. (July 25): Specimens received from Benton, Neshoba, Noxubee, Smith, Union, and Webster Counties, where they were feeding on beans. Reports of injury also received from Jasper, Jones, Lauderdale, Lee, Oktibbeha, and Webster Counties. Reported as moderately abundant in Lafayette County, as numerous in the northern part of Yalobusha County, as doing unusually heavy damage in northeastern Mississippi, as generally heavy in the Meridian area, and as severely injuring beans and soybeans in Scott County.

Ohio. T. H. Parks (July 24): Not very abundant on beans.

E. W. Mendenhall (July 25): Doing some damage to lima beans in Franklin County.

Missouri. L. Haseman (July 23): First overwintered adults reported in southeastern Missouri in gardens on June 4; first eggs observed on June 6; hatching observed on June 9, pupating on June 26; and adults beginning to emerge on July 3. No eggs of July brood found by July 12.

Utah. G. F. Knowlton, et al. (July 24): Severe-to-moderate injury occurring in beanfields at Moab.

A SCARABAEID (Anomala undulata Melsh.)

Mississippi. C. Lyle (July 25): Adults received on July 15 from Neshoba County, where they were feeding on beans.

LIMA BEAN VINE BORER (Monoptilota pergratialis Hulst)

Delaware. L. A. Stearns (July 5): Fifty percent of large planting of pol-limas at Lincoln seriously infested.

PEAS

PEA WEEVIL (Bruchus pisorum L.)

Colorado. G. M. List (July 23): Quite numerous in home gardens and market garden plantings around Fort Collins, as high as 40 percent of the later peas being infested.

Utah. G. F. Knowlton (July 1): More abundant than at any time during the preceding 15 years. Infestation built up through 1938 to 1940 in a number of localities.

Washington. L. G. Smith (July 3): No adults found at Sequim, but four pods contained eggs. One weevil obtained from 225 sweeps at Agnew, 3 from 25 sweeps, and 2 from 25 sweeps in Canadian field peas. Field was just coming into full bloom. In San Juan County on June 24, partially grown larvae were found within seeds of garden peas at Lopez, averaging 2 or 3 per pod. In Jefferson County, on June 24, no weevils were found out of 325 sweeps in a field of Austrian peas at Center. Out of 50 pods, 1 pod was found containing 1 egg. No weevils found at Chimacum; however, 3 out of 15 pods had 1, 3, and 3 eggs, respectively. (July 10): Eggs present on pods of peas at Bangor, Kitsap County, on June 30. No adults observed. Some larvae had entered the seeds.

A WEEVIL (Sitona lineata L.)

Washington. L. G. Smith (July 3): From 10 to 20 collected in seed pea fields of San Juan County on June 27. Foliage badly scalloped and stands were poor. Larvae, pupae, and adults were collected in soil by digging and screening roots of pea plants. Two adults found that had apparently just emerged from pupal stage.

PEA APHID (Macrosiphum pisi Kltb.)

New York. N. Y. State Coll. Agr. News Letter (July 29): Some damage to peas in Cortland County.

Wisconsin. C. L. Fluke (July 23): Infestation very heavy on alfalfa in southeastern and southern parts of State.

North Dakota. J. A. Munro (July 21): Moderately abundant at Fargo and Bismarck.

Utah. G. F. Knowlton, et al. (July 1): Injury to pods and vines occurred in peafields in various parts of northern Utah. Heavy infestations occurring in some fields in Cache County and near Spanish Fork during 1939 were uncommon during 1940. Heavy infestations in alfalfa in several places earlier in the season. (July 25): Reported as causing serious injury to early pod peas in Iron County. Last year 37 carloads were shipped, as compared with only 5 this year, although the acreage was similar.

Washington. L. G. Smith (June 17): Severe damage to peas resulted in untreated areas in the Montesano locality of Grays Harbor County. Late peas have low populations of winged adults and immature nymphs. (July 3): Severe damage observed although there was a low population of aphids on San Juan Island on June 27. Damage to vetch light.

PEA MOTH (Laspeyresia nigricana Steph.)

Washington. L. G. Smith (July 3): Damage to garden peas observed on June 27 at Lopez, San Juan County. Small larvae found in pods.

CABBAGE

CABBAGE SHOOT WEEVIL (Ceutorhynchus assimilis Payk.)

Washington. L. G. Smith (June 26): Observed on June 17 that most of the larvae had emerged from pods on early varieties of cabbage at Montesano. Later varieties still had some larvae present in the pods. One field observed had an estimated 50-percent infestation, and some pods had two or three larvae present. Injury heavier than in previous years. Adults found on wild mustard in bloom. (July 3): Two adults collected on mustard in San Juan County on June 27. Found on wild mustard on a farm at Carlsborg, in Clallam County, on June 24, when pods contained very small larvae. A few dried seed-cabbage stalks near Fredonia, Skagit County, had pods infested on June 26. (July 17): Estimated from observations in Grays Harbor County that from 40 to 50 percent damage to cabbage seed has been caused this year.

CABBAGE CURCULIO (Ceutorhynchus rapae Gyll.)

Wisconsin. C. L. Fluke (July 23): Larvae beginning to pupate on July 17. Found infesting radish tops and many cruciferous plants, but particularly all wild mustards.

IMPORTED CABBAGE WORM (Pieris rapae L.)

New York. N. Y. State Coll. Agr. News Letter (July 29): In Cortland County cabbage worms have been damaging cabbage in some fields. About 50 percent of the plants in one field visited had **two larvae present**. In Wayne County, eggs have largely hatched, although numbers are smaller than usual.

Mississippi. C. Lyle, et al. (July 25): Causing injury to collards in the Durant area and to late cabbage in the Meridian area.

Indiana. J. J. Davis (July 26): Damaging cabbage at Salem on June 22.

Nebraska. H. D. Tate (July 17): Cabbage plants in Antelope County were found to be infested on June 20.

Washington. L. G. Smith (July 10): Reported as stripping young plants on Puget Island, Wahkiakum County, on July 1 which is 3 weeks earlier than usual.

DIAMONDBACK MOTH (Plutella maculipennis Curt.)

New York. N. Y. State Coll. Agr. News Letter (July 29): Much more common than usual in Erie County during week of July 15, but has not caused commercial injury to early cabbage and cauliflower.

Oklahoma. F. E. Whitehead (July 24): Severe on cabbage.

Washington. L. G. Smith (July 3): Severe defoliation of horseradish was observed in Snohomish County on June 25. Some 20 to 50 ~~larvae~~ larvae were found on some leaves. Many adults observed flying. Larvae were observed feeding on June 26 at Fredonia doing moderate damage.

CABBAGE LOOPER (Autographa brassicae Riley)

Tennessee. L. B. Scott (July 19): Seriously damaged cabbage in the north-central part of the State.

HARLEQUIN BUG (Murgantia histrionica Hahn)

South Carolina. F. Sherman, et al. (July 29): Throughout the early season the harlequin bug was below normal, in consequence of severe winter.

Mississippi. C. Lyle, et al. (July 25): Reported as injuring collards in Benton, Holmes, and Leake Counties. Turnips injured in the Meridian territory.

CABBAGE APHID (Brevicoryne brassicae L.)

Utah. G. F. Knowlton (July 9): Damaging cabbage in home gardens in northern Utah.

Washington. L. G. Smith (July 3): Observed on dead and dried seed cabbage stalks near Fredonia on June 26. (July 17): One cabbage-seed field observed in Skagit County is a total loss.

CABBAGE MAGGOT (Hylemya brassicae Bouche)

Minnesota. A. G. Ruggles and assistants (June 29): Very abundant in Mord, Kanabec County.

SQUASH

SQUASH BUG (Anasa tristis Deg.)

New York. N. Y. State Coll. Agr. News Letter (July 22): Eggs are hatching fast. More numerous than in average seasons generally.

Tennessee. L. B. Scott (July 19): Moderately abundant in the north-central part of the State on summer squash and cucumber.

Mississippi. C. Lyle, et al. (July 25): Observed on squash in Leake County and in the Meridian territory.

Wisconsin. E. L. Chambers (July 30): Very abundant in truck gardens and on Hubbard squash, serious losses being reported.

Iowa. C. J. Drake (June 28): Found on young squash vines at Jefferson, Cherokee, Glennwood, Perry, and Ames. Normally abundant.

H. E. Jaques (July): Reported as light in eastern half of State with heavier infestations in the southwestern part.

Nebraska. H. D. Tate (July 17): Complaints of injury to squash received from Antelope, Douglas, Hitchcock, Madison, Phelps, and Redwillow Counties from July 3 to 15.

Oklahoma. F. E. Whitehead (July 24): Injury severe in the truck-growing area near Muskogee, with squash, watermelon, and cantaloup attacked.

Texas. R. K. Fletcher (July 22): Cantaloup and watermelon severely injured on June 29 in Tarrant County, and cantaloup severely injured in Lamar County on June 25.

Utah. G. F. Knowlton (July 2): Squash damaged at Nibley and Logan. (July 15) Injury reported from Farmington, Holladay, and Springville. (July 18) Squash damaged at Layton.

Washington. L. G. Smith (June 26): Reported on June 20 that squash and pumpkins were attacked near Touchet and at the State line, severe damage being done. Reported on June 18 from Franklin County that the bugs were plentiful at Riverview, near Pasco, and that squash was being attacked.

H. P. Lanchester (July 22): Reported as completely destroying winter squash at Walla Walla.

SQUASH BORER (Melittia satyriniformis Hbn.)

New York. N. Y. State Coll. Agr. News Letter (July 15): Eggs being laid about 2 weeks later than usual on Long Island; the earliest ones have hatched.

North Carolina. D. L. Wray (July 2): Observed causing considerable damage to squash in Lewisville, Forsyth County.

Mississippi. C. Lyle, et al. (July 25): Light infestation reported from the Meridian area.

PICKLEWORM (Diaphania nitidalis Stoll)

Mississippi. C. Lyle, et al. (July 25): Observed in squash blooms in Leake County, and heavy infestations were reported from the Meridian area, where cucumbers were being injured, and at State College, where cantaloups were infested.

ASPARAGUS

ASPARAGUS BEETLES (Crioceris spp.)

New Hampshire. J. G. Conklin (July 26): Asparagus beetles, especially C. duodecimpunctata L., unusually abundant in New Hampshire.

Utah. G. F. Knowlton, et al. (June 25): C. asparagi L. was found infesting asparagus at Logan. First time it has been found in Cache Valley.

Washington. L. G. Smith (July 24): Reported that second-generation adults of C. asparagi were appearing in numbers, mating, and ovipositing on July 18 at Puyallup and Sumner, Pierce County. Damage to asparagus light up to now. Second-generation adults of parasites were also appearing in numbers in localities where liberations had been made.

ONIONS

ONION THRIPS (Thrips tabaci Lind.)

Michigan. R. Hutson (July 24): Becoming common on onions at Utica, Grand Rapids, East Lansing, and Marshall.

Utah. G. F. Knowlton (July 9): Injury to onions reported from Roy. (July 26): Injury to onions is occurring at Ogden and Farmington.

Idaho. H. C. Hallock (July 8): Reported as heavily attacking onion in the vicinity of Twin Falls.

LETTUCE

SIX-SPOTTED LEAFHOPPER (Macrostelus divisus Uhl.)

New York. N. Y. State Coll. Agr. News Letter (July 1): Quite a few found in lettuce fields in Oswego County, western New York; no yellows found.

(July 15): Numerous on lettuce in Orleans County, western New York.

(July 29): Nymphs are appearing in the fields now being cut in Genesee County.

SWEET CORN

CORN EAR WORM (Heliothis armigera Hbn.)

New York. N. Y. State Coll. Agr. News Letter (July 22): Still very scarce on Long Island. Overwintering survival apparently lower than usual.

Less than 1 percent of maturing sweet-corn ears infested during the last week. Such larvae as were present were of the earlier instars.

(July 29): First infested corn found on July 24 in Rockland County, eastern New York. About 1 percent of the ears injured to date. Present in small numbers in sweet-corn plantings in Erie County, western New York.

Mississippi. C. Lyle, et al. (July 25): Specimens received from Chickasaw County. Also reported as causing serious damage to corn in northeastern Mississippi, where most ears are infested. Heavy damage to corn caused in the Meridian area; observed on corn in Humphreys County.

Louisiana. C. O. Eddy (July 25): Adults very abundant at Baton Rouge.

Illinois. R. A. Blanchard, and A. F. Satterthwait (July): First appearance somewhat later than in 1939, but damage to early sweet corn in the East Saint Louis area, as well as in southeastern Missouri, was severe in corn fields, which matured between July 6 and 17. First eggs observed on sweet corn in central Illinois on June 5. Small gardens heavily infested by July 17, and corn from these gardens was badly damaged.

Missouri. L. Haseman (July 23): Corn now ready for market shows a high percentage of injury, most of the larvae being from one-half to two-thirds grown on July 22 in central Missouri.

R. A. Blanchard and A. F. Satterthwait (July): Fields of early dent corn in southeastern Missouri heavily infested by July 17.

Kansas. H. R. Bryson (July 25): Whereas early sweet corn carried a heavy population of larvae, later plantings were almost free of them.

Texas. K. P. Ewing, et al. (July 13): At Riesel, McLennan County, 3,600 ears of corn were examined and showed an average of 42.4 exit holes per 100 ears, as compared with 24.8 exit holes per 100 ears last week. (July 20): Examination of 3,600 ears of corn at Riesel showed an average of 59.05 exit holes per 100 ears. (July 27): Average per 100 ears this week was 65.7 exit holes; 3,600 ears examined.

Utah. G. F. Knowlton (July 2): Only moderately abundant in early sweet corn examined at Willard. (July 6): Larvae had infested 35 percent of market sweet corn examined at Brigham. (July 26): Recently maturing sweet corn at Logan has been from 90- to 100-percent infested; that examined at Willard was from 75- to 85-percent infested.

Washington. L. G. Smith (July 3): Larvae have caused no serious damage, but they are attacking sweet corn in the Fruitvale and McKinley areas of Yakima County. Reported on June 27 that the eggs laid in and around tassels were hatching, and that some larvae were nearly full grown.

SWEETPOTATO

SWEETPOTATO LEAF BEETLE (Typophorus viridicyaneus Grotch)

Alabama. J. M. Robinson (July 16): Reported on cotton at Double Springs on June 27.

Mississippi. C. Lyle, et al. (July 25): Found in several sweetpotato fields in the northeastern part of the State.

TORTOISE BEETLES (Cassidinae)

Alabama. J. M. Robinson (July 16): Metritona bivittata Say reported on sweetpotatoes at Greenville on June 19. Coptocycla sp. reported on sweetpotatoes at Moulton on July 3.

Mississippi. C. Lyle, et al. (July 25): Specimens of M. bivittata from sweetpotatoes received from Forrest, Lee, Montgomery, and Yalobusha Counties. Reports of injury to sweetpotatoes by this or some other species of tortoise beetle received from Calhoun County, the Meridian area, and the northeastern part of the State. Specimens of Chelymorpha cassidea F. received the last week in June from Hinds County, where they were feeding on sweetpotatoes. Specimens of the mottled tortoise beetle (Chirida guttata Oliv.) from sweetpotato plants in Tippah County were received the first week in July.

SWEETPOTATO FLEA BEETLE (Chaetocnema confinis Crotch)

Mississippi. C. Lyle, et al. (July 25): Heavy infestation observed in a potato bed in Lamar County.

STRAWBERRY

STRAWBERRY ROOT WEEVIL (Brachyrhinus ovatus L.)

Minnesota. M. W. Wing (July 15): Found in a house at Duluth.

Utah. G. F. Knowlton (July 2): Adults of this species and of B. rugosostriatus Goeze have practically all matured in northern Utah. Considerable control necessary during the last 2 weeks.

STRAWBERRY WEEVIL (Anthonomus signatus Say)

Wisconsin. E. L. Chambers (July 3): Severe damage caused in Jackson and Pierce Counties and vicinity; blossoms of plants cut off.

STRAWBERRY LEAF ROLLER (Ancylis comptana Froel.)

Indiana. J. J. Davis (July 26): Reported as abundant in several localities late in June. In one instance, the observer reported them as going over to raspberries.

Minnesota. M. W. Wing (July 15): Present on strawberry at Rochester.

Nebraska. H. D. Tate (July 17): Plants showing damage were sent in on June 19 from Grant County.

Utah. G. F. Knowlton, et al. (July 6): Adults very abundant in one strawberry patch at North Logan, estimated average for the field being six per square foot. Unusually early for the second brood of adults to appear.

PEPPERPEPPER WEEVIL (Anthonomus eugenii Cano)

California. J. C. Elmore (July 15): Numerous in pepper fields in Los Angeles, Orange, and San Diego Counties. One small Bell pepper field near Huntington Beach, Orange County, was 100-percent infested. Two chili pepper fields in the same locality were heavily damaged. At San Luis Rey, San Diego County, a field of chili peppers was heavily infested on June 19. Practically all of the blossom buds and the pods on one edge of the field were infested. In Los Angeles County near Long Beach infested buds were found in 2 fields, before pods had begun to set, on June 20.

SUGAR BEETSBEET LEAFHOPPER (Eutettix tenellus Bak.)

Utah. G. F. Knowlton (July 1): Curly top is developing more generally in tomato and beet fields in northern Utah than was observed by the reporter at the same time during 1939. Counts in tomatoes at Hooper and Kaneshville ran from 10 to 28 percent; at Syracuse, from 6 to 18 percent; at Perry, from 10 to 34 percent; and at Spanish Fork, from 10 to 35 percent. (July 27): Approximately 60 percent of the tomato plants in Moab, Grand County, are affected by curly top, caused by this pest, which is abundant.

Nevada. G. G. Schweis (June 29): Reported as transmitting curly top to beets in the Lovelock area.

A CECIDOMYIID (Asphondylia sp.)

Arizona. V. E. Romney (May 10): Midge collected in the Salt River Valley. Found to develop in flowers of sugar beets, causing them to become abnormal in size and apparently destroying the germ in that part of the seed ball. (Det. by R. A. Cushman.)

HOPSHOP APHID (Phorodon humuli Schr.)

Oregon. H. E. Morrison (June 24): Prospects of a severe infestation at Grants Pass and in the Willamette Valley.

COMMON RED SPIDER (Tetranychus telarius L.)

Oregon. H. E. Morrison (July 22): Average per leaf at Grants Pass is 200; at Eugene 50; and at Corvallis 500. Severe damage at Corvallis.

TOBACCO

TOBACCO FLEA BEETLE (Epitrix parvula F.)

Tennessee. L. B. Scott (July 19): Scarcer in north-central Tennessee than for many years. Moderate damage early in the season in an occasional plant bed, but present infestation hardly exceeds three per plant.

HORNWORMS (Protoparce spp.)

New York. N. Y. State Coll. Agr. News Letter (July 29): Tobacco worms are beginning to appear on tobacco in Onondaga County, western New York.

Virginia. W. J. Schoene (July 23): First-brood hornworms at Chatham reported as having disappeared from tobacco fields about July 19.

Tennessee. L. B. Scott (July 19): Larvae of P. quinquemaculata Haw. and P. sexta Johan. were very abundant for a short period early in June, causing severe damage to newly planted tobacco, in north-central Tennessee. Practically no larvae on tobacco for the last month. Traps have caught less than 10 percent of the number caught during the same period in 1939. Examination of 200 random plants in 10 fields today disclosed 1 egg and no larvae.

Kentucky. W. A. Price (July 25): Tobacco insects generally very scarce. Hornworms averaged about 1 per 300 plants in July. Counts were made at Lexington.

STALK BORER (Papaipema nebris nitela Guen.)

Massachusetts. A. I. Bourne (July 27): On July 8 an outbreak occurred in tobacco fields in Hadley, a town adjoining Amherst. Young plants, principally along the marginal rows were attacked by young larvae that were migrating from weeds along the edges of the fields. Most damage confined to the first two or three rows. Injury noticed in only one or two fields.

Alabama. J. M. Robinson (July 16): Reported on tomato at Brookside on June 10.

Indiana. J. J. Davis (July 26): Very abundant, especially in the northern half of the State. First reports received on June 26 and continuing to be received. In most instances the hosts reported have been oats, corn, and wheat, there being scattered reports of vegetable and flower crops.

TOBACCO BUDWORM (Heliothis virescens F.)

Florida. F. L. Chamberlin (July 18): Abundant throughout the season in Gadsden County. Tobacco tops and suckers heavily infested.

COTTON INSECTS

BOLL WEEVIL (Anthonomus grandis Boh.)

South Carolina. F. Sherman, et al. (July 29): Below normal in most parts of the State.

F. F. Bondy, et al. (July 27): Still scarce in Florence County. Average infestation of all plots examined during the week was 1.7 percent as compared to 39.1 percent in 1938 and 68.9 percent in 1939.

Georgia. P. M. Gilmer, et al. (July 27): Numbers have not increased in Tift County as anticipated, although there is some rise. Few fields run over 10 percent, and many as low as 1 percent. Hot weather during the week caused some death of larvae in fallen squares, examination of some hundreds of squares giving about 30-percent average mortality, as compared with from 1 to 5 percent in previous weeks.

L. W. Morgan (July 26): No migrations have occurred in Lowndes and Echols Counties and the highest infestation for this week is 1.6 percent.

R. T. Harwell (July 26): Infestation has increased very rapidly during the week in Berrien and Cook Counties. Highest infestation was 16.17 percent, an increase of 4.67 percent since last week. The lowest infestation was 1.83 percent, an increase of 1.5 percent.

Florida. C. S. Rude, et al. (July 27): Infestation has increased rapidly during the last week, the average infestation being 8.06 percent last week and 7.75 percent this week. This apparent contradiction is due to the fact that the infestation in a few fields, very high a week ago, has been reduced by treatments. For the week ended July 30, 1938, the average infestation was 63.6 percent, and for the week ended July 29, 1939, it was 38.7 percent.

Alabama. J. M. Robinson (July 16): Infestation at Auburn is approximately 2 percent.

Mississippi. C. Lyle, et al. (July 29): Except in a few counties the infestation remains very low. Examinations on 77 farms in 33 counties showed only 47 infested, the average being 10 percent, as compared with 6 percent last week and 28 percent on this date in 1939. Five high infestations in Lauderdale and Wayne Counties accounted for the 10-percent average, and without these the average for the State was only 5 percent. Still very few weevils in the Delta, and almost none in the northern part of the State.

E. W. Dunnam, et al. (July 27): In Washington County 2,500 square

were examined on 7 farms, infestation ranging from 0 to 8.5 percent of punctures, although only 1 weevil was found.

R. L. McGarr, et al. (July 27): Infestation continues very low in almost all fields in Oktibbeha and Lowndes Counties. An average of 5,700 squares examined this week in untreated fields and check plots of the experimental cuts showed an infestation of only 8.6 percent, as compared with 28.5 percent in 1939, and 34.5 percent in 1938 at this time. Average infestation for the previous week was 7.4 percent.

Louisiana. I. J. Becnel (July 25): Occurrence in large numbers is rather late. Population is increasing rapidly, and control measures being applied now.

R. C. Gaines, et al. (July 27): During the week 13,300 squares were examined in untreated plots in Madison Parish, averaging 16.6 percent punctured squares. On July 10 at 13 points 4 weevils were taken in 1,300 sweeps, and on July 26 at 16 points 20 were taken in 1,600 sweeps.

Texas. F. L. Thomas (July 23): More damage being caused now than by any other cotton insect. During the last week examinations were made in south-central, north-central, northern, and northeastern Texas. Damage was being caused on 15 of 21 farms examined in south-central Texas, the average infestation running highest in Lee, Milam, Bastrop, Fayette, and Washington Counties. In north-central Texas weevils had been injurious on 12 of 35 farms examined. Control particularly needed in McLennan, Limestone, and Falls Counties. Some injury being caused in Dallas and Fannin Counties, northern Texas. (July 30): In Kaufman County activity was confined mostly to the bottom lands, where from 8 to 48 percent of the squares were found punctured. Examinations in north-central and south-central Texas during the last week showed damage on 8 of 12 farms examined. In bottom-land fields in Brazos and Burleson Counties the infestation was found to range from 2 to 50 percent of punctured squares.

R.E. McDonald (July 1): Damage in the lower Rio Grande Valley has increased enormously. In fields where only occasional damaged squares could be found 2 weeks ago, the entire top crop has now been lost.

K. P. Ewing, et al. (July 27): In McLennan County 4,300 squares were examined in 7 fields, with an average infestation of 15.8 percent of punctured squares. At Mexia 1,800 squares were examined in 3 fields (check plots), averaging 56.3 percent punctured squares. At Riesel 3,600 squares were examined, averaging 6.5 percent punctured squares, as compared with 5.3 punctures per 100 squares for last week.

C. R. Parencia, et al. (July 13): In the control plats in Calhou County infestation records showed that 60 of the 6,000 squares examined were punctured. In the field 13,200 squares were examined and 0.5 percent were found to have been punctured.

Cuba. W. E. Conn (July 9): Dooryard cotton plants found infested in a number of places about 6 miles south of Cardenas; similar plants found heavily infested in localities 2, 4, and 12 miles south of Esperanza, which is about 6 to 8 miles west of Santa Clara. Infestation found about midway between Cardenas and Santa Clara.

BOLLWORM (*Heliothis armigera* Hbn.)

South Carolina. F. F. Bondy, et al. (July 27): Some seen feeding on squares in Florence County, and considerable injury found in one field.

Georgia. P. M. Gilmer, et al. (July 27): Very little damage apparent in T County, even near maturing corn.

Florida. C. S. Rude, et al. (July 27): Numerous in most cottonfields in Florida.

Mississippi. C. Lyle, et al. (July 25): Reported as generally present on cotton in the Grenada area, and as present in all cottonfields in the northwestern counties. Also causing light damage in the Meridian area; observed in Leake County; and causing some injury in the vicinity of State College.

E. W. Dunnam, et al. (July 27): A few can be located in Washington County, but they are decreasing in numbers.

R. L. McGarr, et al. (July 27): A little damage noted in a few cottonfields in Oktibbeha and Lowndes Counties.

Texas. F. L. Thomas (July 23): Threatening in a few fields of Burleson, Washington, Ellis, Hill, and Bell Counties. (July 30): An average of 5 percent of the squares was found to be injured in 24 fields examined in Hill, Ellis, McLennan, Falls, and Robertson Counties. Only scattered eggs found in most fields. Injury noticeable in most fields in the bottom lands of Brazos and Burleson Counties, in some instances amounting to an average of 15 percent of the forms.

C. R. Parencia, et al. (July 20): Damage very light in Calhoun County.

Cuba. W. E. Conn (July 9): Two infestations discovered on wild cotton, one 50 miles west of Havana, and the other 100 miles east of Havana.

COTTON LEAF WORM (Alabama argillacea Hbn.)

Florida. C. S. Rude, et al. (July 6): Found in another field near Newberry, Alachua County, bringing the total to 5 fields in which they have been observed, spread over an area of about 12 miles in width. Found in comparatively small numbers. (July 13): Observed in fields near Trenton, Gilchrist County, Newberry, and also near Wiersdale, in southern Marion County. First- and second-instar larvae observed. In the field where the heaviest infestation was observed all the larvae had pupated. Counts in this field showed an average of less than 100 larvae per acre. In no fields were they numerous enough to be doing damage. (July 20): The third brood began to emerge during the week. Observed in fields in Alachua, Gilchrist, and Marion Counties. Numerous enough to damage cotton in only a few fields. Infested region gradually enlarging. (July 27): Pupation has begun in most fields. A few moths observed.

Texas. F. L. Thomas (July 9): No reports received north of San Patricio County, in the coastal bend area. (July 16): Infestation appearing in the lower valley in May failed to become an important source for later spread.

R. E. McDonald (July 1): Some damage to cotton reported in parts of Nueces County.

PINK BOLLWORM (Pectinophora gossypiella Saund.)

Texas. R. E. McDonald (July 15): Examination of 650 preserved green bolls from the lightly infested area adjoining the heavily infested area in Hudspeth County yielded 44 larvae.

A. J. Chapman (July 27): In 12 identical fields in Presidio County, in which 5 counts were made at 3-day intervals, the records show an increase in the infestation over that of last year.

Cuba. W. E. Conn (July 9): On July 7 scouting was started near Cardenas. Six dooryard plants of wild cotton were found to have a considerable number of dry bolls, which were practically 100-percent infested. From four to six larvae in some of the bolls, and many had pupated. Plants stated to have sprung up within the last 3 years, since the land was cleared. About 1 and 1/3 miles away a number of small plants of Sea Island cotton were found, which were infested, but not so heavily as the first. It was common to find several larvae in a boll. All findings within about 1 mile of the seacoast, and from 6 to 8 miles west of Cardenas.

R. E. McDonald (July 15): On July 2, 3 specimens of the pink bollworm were taken from 50 bolls collected from wild-cotton dooryard plants at San Cristobal, about 50 miles west of Havana. Also found at Cardenas. These 2 infestations are approximately 150 miles apart, one being about 50 miles west and the other 100 miles east of Havana.

COTTON FLEA HOPPER (Psallus seriatus Reut.)

South Carolina. F. F. Bondy, et al. (July 27): A few seen during the week in Florence County, but no damage done.

Alabama. J. M. Robinson (July 16): Few observed.

Mississippi. C. Lyle (July 25): Signs of injury reported from different places in the Durant area.

E. W. Dunnam, et al. (July 27): Not abundant, but can be found in some fields in Washington County.

R. L. McGarr, et al. (July 27): Very few noted in cotton this week in Oktibbeha and Lowndes Counties.

Louisiana. I. J. Becnel (July 25): Cotton damaged over a considerable area of northwestern Louisiana during the last 6 or 8 weeks. Infestations have become reduced, and damage now generally small. However, some damage is still evident in localized areas.

R. C. Gaines, et al. (July 27): On July 16 at 16 points in Madison Parish, 3 adults were taken in 1,600 sweeps. None taken on July 10 and 26.

Texas. F. L. Thomas (July 23): Injurious on about 50 percent of the farm in northern Texas and on one-third of the farms examined in north-central Texas. Most abundant in Kaufman and Fannin Counties, but also causing some damage in Bell, Falls, Ellis, and McLennan Counties. (July 30): Reductions in infestations noted in northern Texas. In Kaufman County, hot weather, accompanied by strong winds, tended to harden the cotton thus causing reductions in the infestations. In the 20 fields examined, an average of 28 was found on 100 terminal buds.

K. P. Ewing, et al. (July 27) Examinations in 5 fields around Waco, McLennan County, showed an average of 19.8 flea hoppers per 100 terminals as compared with an average of 24.1 per 100 terminals last week. At Riesel the average was 18.7 per 100 terminals, as compared with 18.4 last week.

C. R. Parencia, et al. (July 13): Infestations continued to decrease in Calhoun County.

Arizona. W. A. Stevenson (July 20): Sweepings made on croton in Pima County showed a maximum of 188 flea hoppers per 100 sweeps.

APHIDS (Aphidae)

South Carolina. F. F. Bondy, et al. (July 27): Fairly numerous in untreated cotton in Florence County, and increasing in some treated plots. Parasites and predators numerous.

Georgia. P. M. Gilmer, et al. (July 27): Apparently few mature aphids, usually only one or two per leaf affected, but considerable numbers of nymphs. Parasites normally abundant.

L. W. Morgan (July 12): Light infestation in all fields in Lowndes and Echols Counties.

Florida. C. S. Rude, et al. (July 6): Observed in large numbers in one field in Alachua County. (July 20): Numerous in two or three fields in Lake County that have been treated.

Tennessee. G. M. Bentley (July 6): Large numbers of aphids are occurring on cotton in the western counties of Tennessee. Great numbers of ladybeetles feeding on them.

Mississippi. C. Lyle, et al. (July 25): Light infestations of Aphis gossypii Glover reported from Hinds County and from the Grenada and Meridian areas.

E. W. Dunnam, et al. (July 27): Slowly building up in most fields in Washington County, but can be found only by close observation.

R. L. McGarr, et al. (July 27): A few noted in some of the cotton-fields examined during the week in Oktibbeha and Lowndes Counties.

Louisiana. I. J. Becnel (July 25): Early heavy infestation caused serious damage to seedling cotton. Many plants have overcome the effects, but have been delayed considerably.

R. C. Gaines (July 27): Some increase in both treated and untreated cotton in Madison Parish, but not very numerous.

Arkansas. D. Isely (July 23): A. gossypii is unusually abundant for midsummer.

Texas. K. P. Ewing, et al. (July 27): At Riesel, McLennan County, 3,600 square inches of leaf surface were examined, averaging 0.17 aphid per square inch, as compared with 0.07 for last week. In the experimental plots at Waco 1,600 square inches of leaf surface averaged 0.22 aphid per square inch.

Arizona. W. A. Stevenson (July 13): An infestation of A. gossypii on cotton in Pima County was investigated on July 9. Rather heavy, spotted infestation found, considerable dwarfing of the plants having been caused. Parasites had the infestation well under control, aphids on some of the leaves examined being practically 100-percent parasitized.

WHITEFLIES (Aleyrodidae)

Mississippi. E. W. Dunnam, et al. (July 27): Increasing in practically all fields in Washington County, where they seem to be causing some shedding of small squares. Extremely small squares are drying up in some places where they are plentiful on the tender leaves.

FOREST AND SHADE - TREE INSECTS.

PERIODICAL CICADA (Magicicada septendecim L.)

Delaware. L. A. Stearns (July 16): Cicada cases rather common on trunks of apple trees in planting adjoining woodland at Cheswold.

Alabama. W. F. Turner (June 28): Noted in two counties in northeastern Alabama this week. On June 27 comparatively small population noted along a highway in Etowah County. Present in oak woods growing up the side of Sand Mountain. Another small colony noted in oaks growing near Woodville, in Jackson County.

Tennessee. S. A. Rohwer (June 11): Seen and heard in area between Knoxville and Norris Dam on June 11.

FALL WEBWORMS (Hyphantria spp.)

New England. E. P. Felt (July 24): Becoming abundant throughout a large area in southeastern New York and southwestern New England and may develop in larger numbers than in 1939.

Vermont. H. L. Bailey (July 29): More than usually abundant in Washington County, central Vermont.

Connecticut. P. Wallace (July 24): Heavy infestation in lower Fairfield and Litchfield Counties.

Virginia. A. M. Woodside (July 20): More apparent during the last month on apple, plum, and other fruits.

General. T. Thompson (July 14): Observed on roadside trees in northern Florida, southern Georgia, and generally over a large part of Alabama and Mississippi. Unusually severe.

Georgia. T. L. Bissell (July 12): Unusually common on pecan and hickory at Experiment this summer. They have been observed since June 21.

O. I. Snapp (July 8): Fall webworms appear to be more abundant than usual on persimmon at Fort Valley, central Georgia.

Tennessee. G. M. Bentley (July 24): Fall webworm generally abundant over the State. Hosts are a large number of trees and shrubs, primarily sycamore, elm, maple, wild cherry, sumac, and ligustrum.

Indiana. J. J. Davis (July 24): Heaviest infestation in many years over nearly all parts of the State, and severe damage done in some cases. First generation is about ready to leave the webs for pupation.

FOREST TENT CATERPILLAR (Malacosoma disstria Hbn.)

Vermont and Massachusetts. J. V. Schaffner, Jr. (July 11): Outbreak of this caterpillar, which has been rampant throughout the southern half of Vermont and western part of Massachusetts since 1935, has now subsided. Caterpillars and cocoons collected in some localities early in July, but feeding has been very light and infestations extremely local.

New York. J. V. Schaffner, Jr. (July 19): Several areas of woodland, ranging from 5 to 100 acres in size, and a number of maple groves, all 75 to 90 percent defoliated, were reported in Madison, Chenango, Otsego, Delaware, and Broome Counties.

E. P. Felt (July 24): Sarcophaga aldrichi Parker, a parasite of the forest tent caterpillar, was so abundant at Lew Beech and Livingstone Manor in July as to be a nuisance to people in the vicinity.

Colorado. G. M. List (July 23): More numerous in Fort Collins than for several seasons. In some instances shade trees have been injured.

Oregon. S. M. Dohanian (June): Heavy parasitization in the forest tent caterpillars, which are widely prevalent in the Willamette Valley.

GYPSY MOTH (Porthetria dispar L.)

New Hampshire. J. G. Conklin (July 26): Unusually abundant and many acres of woodland have been defoliated. During July the wilt disease developed rapidly.

Vermont. A. F. Burgess (July 6): Severe defoliation noticed in Westminster, Rockingham, and Springfield.

Massachusetts. A. F. Burgess (July 19): Defoliation has been reported from several locations in the central and eastern parts of the State, especially in the Concord-Lincoln-Sudbury region and in Groton and Westford, with a small amount in Andover. Severe defoliation reported just north of Fall River.

SATIN MOTH (Stilpnotia salicis L.)

Oregon. S. M. Dohanian (June): A recent survey in the Willamette Valley shows that this has not proved to be of economic importance. Reported that the heavy infestation, which 3 years ago completely defoliated silver poplars at Rickreall, has been controlled by parasites, and this year shows no damage whatever. Other heavy infestation areas of recent years also show a good control by parasites.

ELM SPANWORM (Ennomos subsignarius Hbn.)

Massachusetts (July 6): One-hundred-percent defoliation of maple, elm, and other trees reported on an area of about $\frac{1}{2}$ square mile in a maple swamp at Wenham.

TUSSOCK MOTHS (Homocampa spp.)

New York. E. P. Felt (July 24): H. vetusta Edv. sufficiently numerous to attract notice in vicinity of Syracuse.

Ohio. J. S. Houser (July 3): An American larch tree, 50 feet tall, at Londonville, is heavily infested with H. leucostigma A. & S. larvae about two-thirds grown. Tree completely defoliated last year. Generally more abundant than for several seasons.

BAGWORM (Thyridopteryx opheneraeformis Haw.)

Maryland. E. M. Cory (July 25): Attacking evergreens generally.

Virginia. M. M. Duncan (July 25): Attacked arborvitae and other shade trees quite severely in section of Chilhowie, Smyth County. Writer believes this is first time that bagworm was found here. First noticed on July 1.

Tennessee. G. M. Bentley (July 14): Occurring in less numbers than for several years.

Mississippi. C. Lyle, et al. (July 25): Specimens received from Bolivar, Choctaw, Harrison, Lafayette, Newton, and Yazoo Counties, where they were said to be feeding on arborvitae, evergreens, and shrubs. Heavy infestations were reported from Holmes, Hinds, and Tate Counties, and in the Meridian and Grenada districts.

Illinois. W. P. Flint (July 26): Infestation, which was greatly reduced in winter of 1935-36, is now reappearing with many scattered and rather severe infestations in the central and south-central parts of the State.

Oklahoma. F. E. Whitehead (July 25): Reported on cedar at Miami.

A CHRYSOMELID (Antipus laticlavus Forst.)

Alabama. J. M. Robinson (July 16): Reported on persimmon at Geneva on July 16.

A WHITEFLY (Trialeurodes wellmani Benis)

California. R. H. Smith (July 17): Quite serious on Rhamnus californica in vicinity of Santa Barbara. Many plants heavily infested. (Det. by Louis M. Russell.)

BEECH

A GALL INSECT (Coccidomyia pudibunda O. S.)

Delaware. E. P. Felt (July 24): Found in abundance on blue-beech foliage near Wilmington.

BOXELDER

BOXELDER APHID (Periphyllus negundinis Thos.)

Utah. G. F. Knowlton (July 16): Damaging boxelder foliage in Logan Canyon.

G. F. Knowlton and F. C. Harmston (July 18): Abundant on boxelder foliage and annoying around Vernal and Maeser, in the Uintah Basin.

CAMPHOR

CAMPHOR THRIPS (Liothrips floridensis Watson)

Florida. J. R. Watson (July 22): Specimens sent in from several counties where damage has been severe.

CATALPA

CATALPA SPHINX (Ceratonia catalpae Bdv.)

Ohio. E. W. Mendenhall (June 27): Severely damaging catalpa trees in Franklin County.

Indiana. J. J. Davis (July 26): Larvae noticeable in all parts of the State, and in many places trees were practically defoliated.

Michigan. R. Hutson (July 24): Specimen sent in from Edwardsburg.

ELM

ELM LEAF BEETLE (Galerucella xanthomelaena Schr.)

New England. R. B. Friend (August 5): Throughout the State of Connecticut this pest has caused very severe injury to unsprayed trees, and I noticed last week end, going from northeastern Connecticut to Boston through northern Rhode Island and parts of Massachusetts, that the damage was very striking. The writer has never before observed injury so severe. Many trees are completely defoliated. This injury has become striking during the last two or three weeks.

New Hampshire. J. G. Conklin (July 26): Locally abundant at Durham but infestations quite spotted.

- Massachusetts. J. V. Schaffner, Jr. (July 21): Injury very noticeable in many localities in Middlesex and Worcester Counties. Outbreaks seem to be extremely local. Injury observed in Holliston, Milford, Hopedale, and Uxbridge.
- Rhode Island. A. E. Stone (July 26): Wintered over in large numbers and more abundant than in any recent year.
- New York. R. E. Horsey (July): Found in numbers on an elm, the larvae being from $2/8$ to $5/8$ inch in length on July 10.
- New Jersey. C. W. Collins (July 17): First pupa of season found at Pluckemin, Somerset County, on July 10. Other stages, including adults that overwintered, noted elsewhere on the same date.
- Virginia. A. M. Woodside (July 20): Fairly common and causing moderate damage to many small elms, particularly Chinese elm, planted along the highway in Augusta County.
- Ohio. E. W. Mendenhall (June 25): Found slightly damaging elms in Kirkersville, Licking County.
- Utah. G. F. Knowlton (June 28): Seriously damaging foliage of several elms at Smithfield.

NATIVE ELM BARK BEETLE (Hylurgopinus rufipes Eich.)

- New Hampshire and Vermont. E. P. Felt (July 24): Extremely abundant in part of the Connecticut River Valley in southern New Hampshire and Vermont, evidently having bred in large numbers from trees blown down or severely damaged by the hurricane of 1938. Large numbers attacked elms in many localities in this region, causing dying back of good-sized branches and in a few cases the death of a considerable proportion of even large trees.
- Vermont. H. L. Bailey (July 29): Elm found seriously attacked in Bradford, Orange County, east-central Vermont. Hurricane-felled elm had been left nearby.

MOURNING CLOAK BUTTERFLY (Hamadryas antiope L.)

- Minnesota. M. W. Wing (July 15): Present on caragana at Ivanhoe.
- Iowa. C. J. Drake (June 28): Found in large numbers on elms in Atlantic.
- South Dakota. H. C. Severin (July 26): Considerably damaging elms and willows in the eastern part of the State.

ELM SAWFLY (Cimbex americana Leach)

- Wisconsin. E. L. Chambers (July 30): Elms and willows in many sections of southern Wisconsin are being stripped.
- Oklahoma. F. E. Whitehead (July 25): Larvae reported on trees at Wagoner.

A CECIDOMYIID (Oligarces ulni Felt)

exas. R. K. Fletcher (July 22): Severely damaging twigs of cedar elm in Bell and McLennan Counties on June 14, and in Bastrop County on June 17.

EUROPEAN ELM SCALE (Gossyparia spuria Mod.)

ew Hampshire. J. G. Conklin (July 26): Specimens on American elm received from Nashua, in the southeastern part of the State.

onnecticut. E. P. Felt (July 24): Found in abundance on an elm at West Hartford.

ew York. R. E. Horsey (July): Fairly common on elms at Rochester in July.

isconsin. E. L. Chambers (July 3): Reports of infestation received from Fond du Lac and Oshkosh.

tah. G. F. Knowlton (July 15): Damaging young elms at Logan and Brigham.

daho. H. C. Hallock (July 8): Complaints of injury received from residents of Twin Falls.

ashington. L. G. Smith (July 10): Specimens sent in on June 7. Attacking elms in vicinity of Pomeroy, Garfield County.

WOOLLY ELM APHID (Eriosoma americanum Riley)

braska. H. D. Tate (July 17): Specimens received from Madison County on July 10.

regon. E. J. Haller (June 15): Very abundant since May 28 on elms at Corvallis, 20 percent of the leaves on some trees being infested. Causing no damage except deformation and discoloration of leaves. (Det. by A. N. Tissot.)

HICKORY

HICKORY PHYLLOXERA (Phylloxera caryaecaulis Fitch)

onnecticut. E. P. Felt (July 24): Occurs in large numbers on some trees at Bristol.

LARCH

LARCH CASEBEARER (Coleophora laricella Wbn.)

ew England. J. V. Schaffner, Jr. (July 11): Casual observations made through Connecticut, Massachusetts, southern half of Vermont, and southern part of New Hampshire indicate that infestations are generally light. One small area of larch in Lee, Mass., was severely defoliated.

LOCUST

LOCUST LEAF MINER (Chalepus dorsalis Thunb.)

Maryland. E. N. Cory (July 20): Attacking locust leaves at Prince Frederick Calvert County.

Virginia. A. M. Woodside (July 20): Damage to foliage of black locust becoming more apparent. Trees in many localities in Augusta County appear scorched.

North Carolina. B. H. Wilford (July 8): Damage to black locust in mountains of western North Carolina is apparently much less serious than it has been in the last 2 or 3 years.

Tennessee. G. M. Bentley (July 15): Reported as found in large numbers on black locust in a park in Memphis.

B. H. Wilford (July 8): Damage to black locust in the mountains of eastern Tennessee apparently much less serious than in the last 2 or 3 years.

Ohio. R. H. Nelson (July 18): Severely injuring black locust along the Ohio River in Lawrence County. Adults numerous on July 18. Moderate infestation found on rose-acacia at Burlington.

A GALL MIDGE (Dasyncura gleditshiae O. S.)

New York. E. P. Felt (July 24): Somewhat abundant on trees in environs of New York City, a considerable proportion of the leaflets being deformed.

MAPLE

WOOLLY ALDER APHID (Prociphilus tessellatus Fitch)

Vermont. H. L. Bailey (July 29): Unusual number of reports from Washington County; central Vermont. Apparently plentiful on silver maples as late as July 22.

Maryland. E. N. Cory (July 1): Attacking maple in Baltimore and in Prince Georges and Saint Marys Counties.

District of Columbia. L. G. Baumhofer (July 15): Numerous calls and specimens received during June and the early part of July indicate that this pest is more abundant than usual in Washington and vicinity.

MAPLE BLADDER GALL (Phyllocoptes quadripes Shim.)

District of Columbia. L. G. Baumhofer (July 22): Numerous inquiries received in June and early July regarding cause of these galls, which were apparently rather common on silver maple in certain sections of Washington and vicinity.

Michigan. R. Hutson (July 24): Common on soft maple at Pontiac, Dearborn, Ann Arbor, East Lansing, and Grand Rapids.

COTTONY MAPLE SCALE (Pulvinaria vitis L.)

New York. E. P. Felt (July 24): Found in considerable numbers on yew at Oyster Bay.

Ohio. T. H. Parks (July 24): Specimens received from Mount Victor, Hardin County, and from Urbana, Champaign County, with statement that maple trees were seriously infested early in July.

Wisconsin. E. L. Chambers (July 30): Abundant on soft maple in Dodge and Jefferson Counties.

Idaho. H. C. Hallock (July 8): Noted attacking Virginia creeper in Twin Falls and very common on maple and other trees in the area.

OAK

TWIG PRUNER (Hypernallus villosus F.)

New Hampshire. J. G. Conklin (July 26): Unusually abundant in southeastern part of the State, particularly on oak.

Minnesota. M. W. Wing (July 15): Very abundant on oak at Farmington, Red Wing, Saint Anthony Park, Saint Paul, and Minneapolis.

A TORTRICID (Argyrotoxa semipurpurana Kearf.)

Connecticut. J. V. Schaffner, Jr. (June 25): Scarlet oak trees in mixed stand of hardwoods on an area of about 5 acres in Wallingford were about 75-percent defoliated early in June. A few white oak trees were also partially defoliated.

A JUMPING GALL (Neuroterus saltatorius Hy. Edw.)

California. D. F. Barnes and G. H. Kaloostian (July 15): Specimens received. Evident that large numbers are now dropping from leaves of the valley oak (Quercus lobata) in Fresno.

A LACEBUG (Corythucha arcuata Say)

New Jersey. M. D. Leonard (July 25): Found attacking white oak at Ridgewood. Most of the leaves so infested that the foliage had assumed a general grayish cast. (Det. by H. G. Barber.)

GIANT APHID (Longistigna caryae Harr.)

Tennessee. G. M. Bentley (July 6): Reported as damaging pin oak at Etowah, McMinn County.

PINE

PALES WEEVIL (Hyllobius pales Hbst.)

Kentucky. W. A. Price (July 25): Received from London with statement that beetles were injuring white pine seedlings.

EUROPEAN PINE SHOOT MOTH (Rhyacionia buoliana Schiff.)

New England. E. P. Felt (July 24): Increasing in abundance in southwestern England and southeastern New York.

New Jersey. T. H. Jones (July 15): Noted causing severe injury in red pine plantings in vicinity of Chester and New Vernon.

Michigan. R. Hutson (July 24): In flight at Saint Joseph from July 12 to 25

PITCH TWIG MOTH (Petrova comstockiana Fern.)

Alabama. J. M. Robinson (July 16): Reported on pine at Tuscaloosa on July 9

RED-HEADED PINE SAWFLY (Neodiprion lecontei Fitch)

Georgia. O. I. Snapp (July 20): Larvae very abundant on a planting of ornamental long-leaf pine trees at Fort Valley, central Georgia; completely defoliated several trees.

Mississippi. C. Lyle (July 25): Received from Pontotoc County, where they were feeding on pine in a forest.

A PINE SAWFLY (Acantholyda erythrocephala L.)

New Jersey. C. L. Griswold (July 19): Larvae found feeding on white pine at Radnor, Delaware County.

PINE BARK APHID (Pineus strobi Htg.)

New York. E. P. Felt (July 24): Abundant on a group of white pines at Oyster Bay. Also numerous here and there in a considerable area centering on New York City.

Minnesota. M. W. Wing (July 15): Present on white pine at Winona.

PINE NEEDLE SCALE (Chionaspis pinifoliae Fitch)

Massachusetts. E. P. Felt (July 24): Reported from Greenfield.

New Jersey. E. P. Felt (July 24): Reported as somewhat abundant from the region about Orange.

Alabama. J. M. Robinson (July 16): Reported on pine at Tuscaloosa on July 9.

Minnesota. M. W. Wing (July 15): Moderately abundant on white spruce.

Nebraska. H. D. Tate (July 17): Heavily infested pine foliage received on July 5 from Sheridan County.

PINE SPITTLE BUG (Aphrophora parallela Say)

Wisconsin. E. L. Chambers (July 30): Very common on all species of pine in southern Wisconsin and causing damage to twigs on Scotch and red pine in Columbia and Wood Counties.

POPLAR

POPLAR TENT MAKER (Ichthyura inclusa Hbn.)

Kentucky. W. A. Price (July 25): Received from Brandenburg where it is troublesome.

A PYRALID (Euzophora ostricorella Hulst)

Maryland. E. N. Cory (July 8): Attacking tulip poplar in Baltimore County. (Det. by C. Heinrich.)

A LEAF MINER (Phyllocnistis populiella Chamb.)

Monting. J. C. Evenden (July 23): Infestation by the aspen leaf miner is very severe on Populus tremuloides at Jackson, the injury being extended to practically every leaf.

A SAWFLY (Pteroncus hudsonii Dyar)

New York. R. E. Horsey (July 24): Seven larvae found on a cottonwood leaf edge, little damage having been done to a few poplar leaves at Rochester.

REDBUD

REDBUD APHID (Aphis pawneeae Hottes)

Tennessee. W. F. Turner (May 17): Collected on an ornamental redbud at East Chattanooga. (Det. by P. W. Mason.)

SPRUCE

SPRUCE SAWFLY (Neodiprion abietis Harr.)

Maine. E. P. Felt (July 24): Caused serious injury at Bar Harbor.

SPRUCE BUD SCALE (Physokermes piceae Schr.)

Ohio. J. S. Houser (July 8): Infestation on Norway spruce at Youngstown sufficient to cause specific damage. Young are beginning to appear.

AN APHID (Cinara glehna Essig)

District of Columbia. L. G. Baunhofer (May 16): Aphids collected from spruce twigs at Washington. Found clustered on bark of twig between needles. No winged forms present. (Det. by P. W. Mason.)

SPRUCE MITE (Paratetranychus uniunguis Jacobi)

Minnesota. M. W. Wing (July 15): Reported as very abundant on spruce at Clark field, Frazee, Saint Paul, Pipeston, and Albert Lea, and on white and red spruce at Minneapolis.

TAMARACK

EASTERN LARCH BEETLE (Dendroctonus simplex Lec.)

Minnesota. W. M. Wing (July 15): Present on tamarack at Marine on Saint Clair.

WALNUT

WALNUT CATERPILLAR (Datana integerrima G. & R.)

Tennessee. G. M. Bentley (July 20): Damaging walnut trees in vicinity of Lawrenceburg.

Mississippi. C. Lyle, et al. (July 25): Reported as feeding on pecan in one locality in Tate County.

Missouri. L. Hasenon (July 23): In central Missouri since the middle of July a few colonies found working on hickory and walnut. Most of these are in the fourth and fifth instars.

WILLOW

COTTONWOOD LEAF BEETLE (Chrysomela scripta F.)

Louisiana. T. E. Snyder (July 13): Beetles and larvae from New Orleans. (Det. by W. H. Anderson.)

Ohio. E. W. Mendenhall (June 25): Found doing damage to willows in Kirkersville Licking County.

North Dakota. J. A. Munro (July 21): Distributed and moderately abundant particularly in young cottonwood plantings.

SPOTTED WILLOW LEAF BEETLE (Chrysomela lapponica L.)

South Dakota. H. C. Severin (July 26): Defoliating willows in the south-centre part of State.

POPLAR AND WILLOW BORER (Sternochotus lapathi L.)

Michigan. R. Hutson (July 24): Reported from Lansing, Detroit, and Portland.

Minnesota. M. W. Wing (July 15): Present on willow at Milaca.

Oregon. J. Schuh (June 24): First adult observed on June 19 at Portland.
Many pupae. Severe damage to willows and poplars in certain localities.

CORRECTION: Note on S. lapathi published in the Insect Pest Survey Bulletin, dated July 1, 1939, (p. 337), refers to some leaf-feeding beetle, and not to S. lapathi.

EUROPEAN WILLOW LEAF BEETLE (Plagiodera versicolora Laich.)

Pennsylvania. L. G. Baunhofer (July 18): Adults feeding on willow at Mount Lebanon, a suburb of Pittsburgh. This is farther west than the beetle has previously been recorded. (Det. by H. S. Barber.)

AN APHID (Chaitophorus vininalis Monell)

New Jersey. M. D. Leonard (July 25): Infestation on large willow at Ridgewood has been building up, until now almost every leaf is heavily infested.

INSECTS AFFECTING GREENHOUSE
AND ORNAMENTAL PLANTS

THREE-LINED POTATO BEETLE (Lema trilineata Oliv.)

Minnesota. M. W. Wing (July 15): Moderately abundant on Japanese lantern at Saint Anthony Park and Pelican Rapids.

A GEOMETRID (Coryphista meadii Pack.)

Ohio. C. R. Neiswander (July 24): Causing appreciable injury to barberry at Wooster and in certain other localities in Ohio. (Det. by H. W. Capes)

A MIRID (Sixeonotus areolatus Knight)

Texas. R. K. Fletcher (July 22): Causing very severe injury to gaillardia on June 22.

HAIRY CHINCH BUG (Blissus hirtus Montd.)

Connecticut. J. P. Johnson (July 22): Two to three weeks later than last year, infestations in lawns in New Haven and Westport being considerably below those of 1939, owing to weather conditions. Appeared in great numbers in several parts of Hartford, causing severe damage.

New York. N. Y. State Coll. Agr. News Letter (July 8): Considerable damage is being done to lawns and golf courses in Westchester County.

A LACEBUG (Piesma cinerea Say)

South Dakota. H. C. Severin (July 26): Doing considerable damage to garden plants in many areas of the State.

MEALY FLATA (Ormenis pruinosa Say)

New Jersey. M. D. Leonard (July 25): Nymphs infesting a number of new shoots on a good-sized barberry hedge at Ridgewood.

AN APHID (Capitophorus gillettei Theob.)

New York. M. D. Leonard (July 27): Every leaf on two dozen large smartweed plants grown in pots at Flushing infested. Considerable honeydew on leaves. Plants infested last year but not nearly so heavily.

OYSTERSHELL SCALE (Lepidosaphes ulmi L.)

Connecticut. E. P. Felt (July 24): Found abundant on boxwood at Stamford also on yellowwood.

Minnesota. M. W. Wing (July 15): Scarce on apple at Farmington.

South Dakota. H. C. Severin (July 26): Causing more and more trouble each year, especially on apple, currant, lilac, and buckthorn hedge plants.

ARBORVITAE

A LEAF MINER (Recurvaria thujaella Kearf.)

Delaware. C. W. Collins (June 29): Feeding on arborvitae at Lewes on June 5.
(Det. by C. Heinrich.)

ARBORVITAE LEAF MINER (Argyresthia thuiella Pack.)

Tennessee. G. M. Bentley (July 26): Injuring arborvitae in Sullivan and Washington Counties.

AZALEA

A THRIPS (Heterothrips azaleae Hood)

Maryland. G. V. Johnson (June 6): Infesting blooms of azalea at Beltsville on June 4. (Det. by J. C. Crawford.)

CHRYSANTHEMUM

CHRYSANTHEMUM LACEBUG (Corythucha marmorata Uhl.)

Ohio. T. H. Parks (July 24): Injured leaves received on July 15 from Warren, Trumbull County, in eastern Ohio.

CHRYSANTHEMUM APHID (Macrosiphoniella sanborni Gill.)

New Jersey. M. D. Leonard (July 25): Very few on the tender terminal leaves of a number of chrysanthemum plants under observation all season at Ridgewood.

District of Columbia. H. Sollers (June 22): Found on chrysanthemum where they were being eaten by ladybeetle larvae. (Det. by P. W. Mason.)

COLUMBINE

COLUMBINE LEAF MINER (Phytomyza minuscula Gour.)

New Jersey. M. D. Leonard (July 25): Infesting several columbina plants under observation at Ridgewood; almost every leaf is badly mined.

Tennessee. G. M. Bentley (June 28): Causing injury to columbine at Grayville, Rhea County.

AN APHID (Pergandeidia trirhoda Walk.)

New Jersey (July 25): Considerable infestation on several columbine plants at Ridgewood.

DOGWOOD

A CERAMBYCID (Oberea tripunctata Swed.)

Maryland. E. N. Cory (July 16): Larva collected from dogwood at Berwyn.
(Det. by W. H. Anderson.)

EUONYMUS

EUONYMUS SCALE (Chionaspis euonymi Comst.)

Georgia. T. L. Bissell (July 15): Old hedge at Griffin severely infested in spots. Large branches were killed.

Mississippi. C. Lyle (July 25): Specimens from euonymus plants received from Chickasaw County.

Texas. R. K. Fletcher (July 22): Very heavy infestation on euonymus in Rusk County on July 17.

GLADIOLUS

GLADIOLUS THRIPS (Taeniothrips simplex Morison)

Georgia. T. L. Bissell (July 22): Gladiolus blossoms in a garden at Experiment ruined.

Mississippi. C. Lyle (July 25): Specimens received from Jackson County with reports of serious injury to one planting.

Wisconsin. E. L. Chambers (July 30): Very abundant on late gladiolus in Jefferson, Dodge, Milwaukee, and Ozaukee Counties.

Washington. C. F. Doucette (July 16): Gladiolus plants, about 18 to 24 inches high, severely injured, when observed on July 7 in Tacoma. Many adults and larvae present.

IVY

A SCALE (Chrysomphalus bifasciculatus Ferris)

New Jersey. E. P. Felt (July 24): Occurred in considerable numbers on ivy growing indoors in the vicinity of Orange.

LILY

APHIDS (Aphidae)

Washington. C. F. Doucette (May 17): Myzus convolvuli Kltb. found sparsely scattered in terminals of various lilies at Sumner. (Det. by P. W. Mason.)

Oregon. C. F. Doucette (May 12): Aphis gossypii Glov. present on lily plants in a nursery at Dillard. (May 13): Aphids found on lilies at Harbor included M. circumflexus Buckt., A. gossypii, and M. convolvuli. (May 14): At Charleston one specimen of M. circumflexus was collected on lily, and M. convolvuli was moderately abundant. (Det. by P. W. Mason.)

MAGNOLIA

TULIPTREE SCALE (Toumeyella liriodendri Gmel.)

Texas. R. K. Fletcher (July 8): Collected from pink magnolia at Beaumont. (Det. by H. Morrison.)

PHLOX

PHLOX PLANT BUG (Lopidea davisi Knight)

Indiana. J. J. Davis (July 26): Very abundant at La Fayette and Indianapolis.

ROSE

ROSE CURCULIO (Rhynchites bicolor F.)

Minnesota. M. W. Wing (July 15): Very abundant on rose at Saint Anthony Park, and present on rose at Elk River.

Utah. G. F. Knowlton (July 20): Damaging rosebuds severely in a garden at Logan.

ROSE LEAF BEETLE (Nodonota puncticollis Say)

Virginia. W. J. Schoene (July 23): Reported as doing considerable damage to apples in some places early in June.

South Dakota. H. C. Severin (July 26): Considerable damage to roses, especially in the eastern part of State.

A SCARABAEID (Strigoderma arboricola F.)

Minnesota. M. W. Wing (July 15): Present on rose at Saint Paul, and on flowers at New York Mills.

A SCARABAEID (Trichiotinus assimilis Kby.)

Minnesota. M. W. Wing (July 15): Present on rose at Pequot Lakes.

ROSE APHID (Macrosiphum rosae L.)

New Jersey. M. D. Leonard (July 18): Reported as scarce up until about 2 weeks ago, since when a considerable infestation has been building up at Ridgewood.

INSECTS ATTACKING MAN AND
DOMESTIC ANIMALS

MAN

MOSQUITOES (Culicinae)

New Hampshire. F. C. Bishopp and C. N. Smith (June 28): Aedes intrudens Dyar, A. canadensis Theob., and A. cinereus Meig. were collected in the vicinity of Wolfeboro and Melvin, attacking man. A. intrudens by far the most abundant and annoying. Specimens of an Aedes in the stimulan group also collected. (Det. by A. Stone.)

Vermont. H. L. Bailey (June 18): Aedes spp. again unusually abundant in the town of Salisbury; abundant over the State.

Tennessee. G. M. Bentley (July 12): A. aegypti L. is making its appearance in numbers of buildings.

Florida. G. H. Bradley (June 30): Some general breeding on the salt marshes at New Smyrna Beach occurred, owing to rainfall during the last week of June. Infestation in Colusia County very low up to the present. Light trap collections at New Smyrna have shown average daily collections of the three principal pest species, A. taeniorhynchus Wied., A. sollicitus Walk., and Psorophora columbiae D. & K., of only 0.2 for May and 9.9 for June, as compared with average of 83 and 202 per collection for the same months in 1939.

Mississippi. C. Lyle (July 25): Very numerous, even out in fields, in some sections of the State, owing to the heavy rainfall early in July. Specimens of P. ciliata F. were sent in from Leflore County.

Texas. W. G. Bruce (July 25): Abundant and annoying at Dallas. Very abundant along the Trinity River at Dallas, where flood waters left innumerable breeding places, all of which are heavily populated with larvae and pupae.

Utah. G. F. Knowlton (July 1): Extremely abundant and annoying in one section of Palmira, in Utah County.

Oregon. H. H. Stage (June 30): A. vexans Meig. and A. lateralis Meig. relatively scarce in the lower Columbia River Valley. This was as expected, as most of the egg beds were not inundated by the far-below-normal flood crest of the Columbia and Willamette Rivers.

BLACK FLIES (Simulium spp.)

New Hampshire. F. C. Bishopp and C. N. Smith (June 28): S. venustum Say was found to be abundant all around Lake Winnepesaukee from June 26 to 28. It was attacking livestock in great numbers but man only occasionally. (Det. by A. Stone.)

Maryland. F. C. Bishopp (July 24): S. perissum D. & S. has been actively flying about man, occasionally biting, nearly every day in the Silver Spring area. (Det. by A. Stone.)

Alaska. F. C. Bishopp (July 25): In June four or five specimens of S. vittatum Zett. were submitted from Kodiak, where they are very annoying, although biting only occasionally. (Det. by A. Stone.)

A SAND FLY (Culicoides obsoletus Meig.)

New Hampshire. F. C. Bishopp and C. N. Smith (June 28): Fairly numerous and attempting to bite man in the vicinity of Melvin from June 26 to 28. (Det. by A. Stone.)

A GNAT (Chaoborus astictopus D. & K.)

California. A. W. Lindquist (June 30): The first measurable adult emergence at Nice was on April 26. Total numbers emerged in May and June are less than a year ago. Drifts of billions of eggs on the water surface were recorded on 9 days in May and on 13 days in June, whereas only 2 drifts were observed last year.

A PHLEBOTOMUS FLY (Phlebotomus diabolicus Hall)

Texas. A. W. Lindquist (June 14): Specimen received from Austin, where it had attacked man, extends the known distribution of the species. (Det. by D. G. Hall.)

HUMAN FLEA (Pulex irritans L.)

Nebraska. H. D. Tate (July 17): Specimens sent in from Cedar County on June 24. Reported as attacking man.

FLEAS (Stenocephalides spp.)

Tennessee. G. M. Bentley (July 19): Fleas frequently reported as annoying in buildings and around houses.

Nebraska. H. D. Tate (July 17): Reported as numerous in basement of a house in Gage County on June 20.

BAT BUG (Cimex pilosellus Horv.)

Ohio. E. A. Back (June 10): Report of hordes found in an attic of a house, where bats were roosting. Following the use of control measures, they were found in living rooms but none attacked persons.

ROCKY MOUNTAIN SPOTTED FEVER TICK (Dermacentor andersoni Stiles)

Utah. G. F. Knowlton (July 5): Found attacking man in Allen's Canyon, in Rich County.

CHIGGER (Eutrombicula alfreddugesi Oud.)

Illinois. F. C. Bishopp (July 8): Reported as extremely bad in a garden at Fox River Grove. Indicated as being more abundant here than ever before noted by the correspondent during a 15-year residence in this area.

Missouri. L. Haseman (July 23): Unusually heavy infestation during July, complaints being received from all parts of the State.

Nebraska. H. D. Tate (July 17): Request for control information received from Douglas County on June 25. Troublesome on a lawn.

Texas. W. G. Bruce (July 25): Worse than in the last 4 years at Dallas. Very annoying to man and dogs.

TROPICAL RAT MITE (Liponyssus bacoti Hirst)

District of Columbia. F. C. Bishopp (July 29): Found biting man in a house in Washington. (Det. by H. E. Ewing.)

West Virginia. W. M. Williams (June 11): Collected from man at Romney on June 10. (Det. by H. E. Ewing.)

Alabama. J. M. Robinson (July 16): Reported on man at Oneonta on June 6.

A BIRD MITE (Liponyssus sylviarum C. & F.)

Maryland. E. A. Back (June 13): Specimens received from Baltimore, where they were reported as annoying to the occupants of a house. (Det. by H. E. Ewing.)

CATTLE

SCREWORM (Cochliomyia americana C. & P.)

Texas. E. W. Laake (June 30): No adults taken in the Dallas status trap during the period April-June.

HORN FLY (Haematobia irritans L.)

Georgia. T. L. Bissell (July 20): Flies, apparently this species, reported as seriously annoying to beef cattle at Jonesboro.

Florida. A. L. Brody (July): Still numerous, averaging 1,000 or more per animal, on steers at the Government Station at Panama City. Range animals observed north of Panama City to Bonifay had few or none.

Kansas. H. R. Bryson (July 25): Greatly reduced in numbers during the last 2 weeks.

Texas and Oklahoma. E. W. Laake (June 30): Overwintered so successfully in the vicinity of Dallas and have bred up so well that they are now unusually abundant on cattle at Dallas, Grand Prairie, Cresson, Fort Worth, Rhome, and Bowie, Tex.; also at Waurika, Okla.

E. C. Cushing (July 10): Quite numerous at Menard, Tex., throughout June.

W. G. Bruce (July 25): Found from 500 to 1,000 per head on untreated cattle in the vicinity of Dallas, and from 2,000 to 3,000 per head on range cattle at Cresson, Tex., and at Waurika, Okla. Infestations have not been reduced as usual in the vicinity of Dallas by heat and dryness in July, as there has been ample rainfall to maintain it.

South Dakota. H. C. Severin (July 26): Abundant throughout the State, and especially troublesome in the northeastern part, in the lake and slough districts.

STABLEFLY (Stomoxys calcitrans L.)

Florida. S. W. Simmons (July 23): First report this season of annoyance on beaches in Bay County.

Nebraska. H. D. Tate (July 17): Requests for control information sent in from Hamilton, Nuckolls, Butler, Boyd, and Box Butte Counties during the period June 16 to July 15.

Texas and Oklahoma. W. G. Bruce (July 25): Abundant and annoying to cattle and horses at Dallas and Cresson, Tex., and at Waurika, Okla.

South Dakota. H. C. Severin (July 26): Abundant over the State.

HORSE FLIES (Tabanidae)

Georgia. T. L. Bissell (July 20): Reported as extremely annoying to beef cattle on pastures at Jonesboro.

Minnesota. M. W. Wing (July 15): Tabanus atratus F. found on horses at Waconia.

Texas. E. C. Cushing (July 10): Horse flies, possibly Tabanus spp., are causing considerable annoyance to stock at Menard.

W. G. Bruce (July 25): Apparently more abundant at Dallas than in the last 4 years.

Utah. G. F. Knowlton (July 6): T. sonomensis O.S. is annoying livestock at Woodruff.

SHORT-NOSED CATTLE LOUSE (Haematopinus eurysternus Nitz.)

General. O. G. Babcock (July 25): From 1 to $1\frac{1}{2}$ percent of the untreated range-breeding herd was infested on June 30 in the Texas Panhandle, in northeastern New Mexico, and in southern Colorado.

TICKS (Amblyomma spp.)

Florida. A. L. Brody, et al. (July 19): Gulf coast ticks (A. maculatum Koh) were numerous on sheep from open range at a place near Bethlehem, about 20 miles northwest of Bonifay. Average per animal was about 10. In some places few ticks, but considerable injury was observed.

Mississippi. C. Lyle (July 25): Specimens of the lone star tick (A. americanum L.) received from Marion County the last week in June.

HOUSEHOLD AND STORED-PRODUCTS INSECTS

TERMITES (Isoptera)

Rhode Island. A. E. Stene (July 26): Becoming abundant in timber blown to the ground by the hurricane of 1938.

Iowa. C. J. Drake (June 28): Reported as doing considerable damage to buildings in Fort Dodge, Des Moines, Ottumwa, Clinton, Keokuk, and Rock Rapids.

Nebraska. H. D. Tate (July 17): Complaints and inquiries regarding damage to buildings by Reticulitermes tibialis Banks received from Furnas, Gage, Nemaha, and Richardson Counties during the period June 16 to July 15.

ANTS (Formicidae)

General. C. F. W. Muesebeck (July): Numerous specimens of Tetramorium caespitum L. being submitted under the impression that they are termites. Most of the specimens are from towns and cities in States along the Atlantic seaboard, especially from Virginia northward. (Det. by M. R. Smith.)

Virginia. E. A. Back (July 25): Formica truncicola integra Nyl. collected on May 30 at Richmond. (Det. by M. R. Smith.)

Georgia. E. A. Back (July 25): Specimens of Camponotus abdominalis floridanus Buckl. received on June 8 from Savannah. (Det. by M. R. Smith.)

Mississippi. C. Lyle (July 25): Iridomyrmex analis Andre reported as damaging strawberry plants in Bolivar County. The Argentine ant (I. humilis Mayr) was reported as causing annoyance in some houses in Jackson County.

Kentucky. W. A. Price (July 25): More than the usual number of inquiries on ants received.

Indiana. J. J. Davis (July 26): The carpenter ant (C. herculeanus pennsylvanicus Deg.) has been very abundant in many parts of Indiana, where infestations occurred in and around houses.

Arkansas. E. A. Back (July 25): Specimens of Crematogaster laeviuscula clara Mayr received on June 20 from Texarkana. (Det. by M. R. Smith.)

Illinois. E. A. Back (July 25): F. cinerea neocinerea, found in a house in Chicago, received on July 6. Specimens of Lasius umbratus mixtus aphidicola Walsh received on July 5 from Effingham. (Det. by M. R. Smith.)

Minnesota. M. W. Wing (July 15): A variety of F. fusca L. was very abundant at Hector. C. herculeanus pennsylvanicus was scarce at Milaca, when a nuptial flight was observed. Also scarce at Deerwood.

Nebraska. H. D. Tate (July 17): C. herculeanus pennsylvanicus reported as appearing in well water, and as living in the walls of the well, in Pawnee County on June 25. The little black ant (Monomorium minimum Buckl.) and Pharaoh's ant (M. pharaonis L.) were troublesome in a house in Hamilton County on July 2.

Texas. R. K. Fletcher (July 22): Reported on young plum trees in San Saba County on June 3; in a house in Harris County on June 20; in Childress County on July 12 (probably the red agricultural ant, Pogonomyrmex barbatus F. Smith); and in houses in Rockwall and Collin Counties on July 7.

Arizona. E. A. Back (July 25): Specimens of Liometopum apiculatum luctuosum Whlbr. received on June 22 from Miami. (Det. by M. R. Smith.)

ORIENTAL COCKROACH (Blatta orientalis L.)

Maryland. E. A. Back (June 24): Specimens received from Bay City.

Virginia. E. A. Back (July 3): Specimens received from University.

Minnesota. M. W. Wing (July 15): Scarce in houses at Saint Paul.

Nebraska. H. D. Tate (July 17): Reported on June 17 as infesting basements of two houses in Douglas and Lancaster Counties.

GERMAN COCKROACH (Blattella germanica L.)

Ohio. E. A. Back (June 23): Specimens received from Niles.

Mississippi. C. Lyle, et al. (July 25): Complaints of annoyance reported from Grenada and Lincoln Counties, from southeastern Mississippi, and by residents of State College.

BROWN-BANDED COCKROACH (Supella supellectilium Serv.)

California. H. J. Ryan (April 8): Taken in a house in San Bernardino.
(Det. by A. G. Rehn.)

POWDER-POST BEETLES (Lyctus spp.)

Ohio. T. H. Parks (July 24): More than the usual number of complaints received of the severe injury caused generally.

Indiana. J. J. Davis (July 26): Still a major pest in buildings.

Iowa. C. J. Drake (June 28): Found damaging buildings in Russell and Des Moines.

Kansas. R. T. Cotton (June 25): L. parallelopipedus Melsh., was collected in a box car of flour at Manhattan. (Det. by W. S. Fisher.)

WHARF BORER (Nacerda melanura L.)

Massachusetts. A. I. Bourne (July 27): Reported as overrunning lower apartments in a building in Brookline on July 1.

New York. E. A. Back (July 25): Adults received during June from Brooklyn, reported as swarming over inner walls and floors of grain barges. Apparently emerging from timbers kept constantly dampened by water.

New Jersey. E. A. Back (June 20): Adults received from food establishment in Newark.

Maryland. E. A. Back (June 20): Adults received from house in Hyattsville, where they were continually appearing in a screened porch. Adults thought by owner to be emerging from furniture in a furniture store in Baltimore were traced to basement, where damp floor boards were honeycombed by larvae.

Ohio. E. A. Back (July 25): Adults exceedingly abundant in basement of building in Cleveland during the period June 1 to July 20. Finding their way in small but annoying numbers to the floor above.

WOOD BORERS (Coleoptera)

Massachusetts. A. I. Bourne (July 27): Callidium violaceum L. emerged early in June in large numbers from pine lumber, much of it with bark edging, piled since 1936 in the open at Northampton. Box lumber was injured by larvae. Adults of Monochamus scutellatus Say emerged from the walls or woodwork of a recently constructed house in Chelmsford between early May and early July. House first occupied on April 1.

New York. E. A. Back (July 10): Adults of Throscus chevrolati Bonv. found in numbers on walls and ceilings in house. Apparently attracted into house by lights from outdoors, where they are believed to be breeding in decayed wood. (Det. by W. S. Fisher.)

T. G. Spencer (July 22): Logs in log cabin built 13 years ago near Rochester found to be scored and mined by insects (Merium proteus Kby.), which have worked under the bark. (Det. by W. H. Anderson.)

New Jersey. E. A. Back (June 1): Specimens of a borer, C. janthinum Lec., received from Budd Lake, where they were reported as abundant in a large log cabin built of cedar. (Det. by W. S. Fisher.)

Maryland. F. V. Rand (July 24): Specimens of Smodicum cucujiforme Say removed from rustic furniture, 3 years old, at Epping Forest, near Annapolis. (Det. by W. S. Fisher.)

E. A. Back (June 11): Beetles, Hexarthrum ulkei Horn and Pselactus spodiops Hbst., removed from old, damp, decaying basement floor boards in a building in Baltimore, where they were associated with Nagorda melanura L. (Det. by L. L. Buchanan.)

District of Columbia. E. A. Back (June 27): Adult of the old house borer, Hyletrapes bajulus L., captured emerging from newly made exit hole in wooden windowsill of house constructed during fall of 1937. Exit holes found in June of 1938 and 1939.

Florida. J. F. Hanson (July 18): Reported as presumably living in wood in a house in Florida. (Det. by W. S. Fisher.)

Ohio. N. F. Howard (June 26): A chestnut borer (Agrilus sp.) collected in a residence in Columbus, built in 1936. Many beams, cornices, and other wooden parts found to contain holes. Associated with it was Xyleborus affinis Eich. (Det. by M. W. Blackman.)

Michigan. G. N. Lamb (June 26): Ptilinus pruinosis Csy. found attacking quaking aspen logs in a cabin near Big Rapids. (Det. by W. S. Fisher.)

Minnesota. M. W. Wing (July 15): Phymatodes dimidiatus Kby. present on white pine logs at Saint Paul.

Nebraska. H. D. Tate (July 17): A specimen sent in from Thayer County on July 1 was identified as Buprestis rufipes Oliv. This is apparently our first record for this species in Nebraska.

Texas. E. A. Back (June 28): Specimens of the pale-marked ash borer (Eburia quadrigeminata Say) received from Corpus Christi, where they were reported as attacking oak furniture in a residence.

California. E. A. Back (June 12): Trunk attacked and rendered unsalable by Polycanon stouti Lec.

Mexico. E. A. Back (July 22): A rustic Mexican chair, made in Guadalajara, was found infested by a scolytid borer, Renocis mexicanus Blackman, in New York City, N.Y., in June 1939, and was shipped to Washington.

An active infestation maintained itself until July 22, 1940, in those parts of the chair made of wood of Eysenhardtia, from which the bark had not been removed. (Det. by M. W. Blackman.)

A WASP (Trypoxylon rubrocinctum Pack.)

Maryland. F. V. Rand (July 24): Removed from rustic furniture at Epping Forest, near Annapolis. (Det. by C. F. W. Muesebeck.)

TISSUE PAPER BUG (Thylodrias contractus Mots.)

District of Columbia. E. A. Back (July 6): Three larvae found in a house in Washington.

A BOOK BORER (Neogastrallus librinocens Fisher)

Florida. E. A. Back (July 29): Infestation of books in a library at Winter Park seemed upon inspection to be of recent origin. Control measures used during June. Libraries at Saint Leo and Saint Augustine, treated during the summer of 1938, show no evidence of active infestations. Record books in the courthouse of St. Johns County badly infested.

CARPET BEETLES (Dermestidae)

General. E. A. Back (July 25): Specimens of the black carpet beetle (Attagenus piceus Oliv.) received on June 17 from Detroit, Mich.; on June 27 from Newark, N. J., and from Cleveland, Ohio; on June 25 from Ellwood City, Pa.; on July 2 from New York City; and on July 8 from Whitesboro, N. Y., and from Orange, N. J. Specimens of the varied carpet beetle (Anthrenus verbasci L.) received from a house in Dallas, Pa., on July 8. Specimens of A. verbasci received from Hagerstown, Md., on June 25.

DRUG STORE WEEVIL (Stegobium paniceum L.)

Idaho. T. A. Brindley (May 6): Peas injured at Moscow. (Det. by W. S. Fisher.)

DERMESTIDS (Trogoderma spp.)

Michigan. R. Hutson (July 24): T. versicolor Creutzer was found in cereal at Fremont.

Minnesota. M. W. Wing (July 15): T. ornatum Say found on rolled wheat.

LARDER BEETLES (Dermestes spp.)

District of Columbia. E. A. Back (July 15): Larvae of D. vulpinus F. found in a heavy infestation in a building.

Minnesota. M. W. Wing (July 15): D. lardarius L. present at Milaca.

A FLOUR BEETLE (Tribolium madens Charp.)

Minnesota. M. W. Wing (July 15): Present on rolled wheat.

LESSER GRAIN BORER (Rhizopertha dominica F.)

Kentucky. E. A. Back (July 19): Specimens received from Louisville, where they were found riddling the heavy leather covering of horse collars filled with rye straw.

WEBBING CLOTHES MOTH (Tineola biselliella Hum.)

General. E. A. Back (July 18): Larvae were ruining celanese covers of wool-filled comforters in New York City. In June three new houses in Scarsdale, N. Y., were infested with larvae developing on cattle-hair insulation around plumbing in walls. A parasite (Apanteles carpatus Say) of the clothes moth was collected in considerable numbers on windowsills of a storage warehouse in Washington, D. C. (Det. by C. F. W. Muesebeck.) So troublesome in a house in Milwaukee, Wis., that the cattle-hair insulation was removed.

FIELD CRICKET (Gryllus assimilis F.)

North Dakota. J. A. Munro (July 21): Moderately abundant near Rugby on July 20.

Nebraska. H. D. Tate (July 17): Reported as damaging strawberries in Washington County on June 20.

HOUSE CRICKET (Gryllus domesticus L.)

Virginia. E. A. Back (June 19): Present in houses in Richmond near a city dump. (July 22): Reported as abundant in a house near city dump at Lyon Village.

SPRINGTAILS (Sira spp.)

District of Columbia. E. A. Back (June 12): S. platani Nicolet and S. buski Lubbock were present and annoying in an apartment in Washington. (Det. by Grace Glance.)

BOOKLOUSE (Troctes divinatorius Mull.)

District of Columbia. E. A. Back (June 12): Found in an apartment in Washington. (Det. by A. B. Gurney.)

INSECT PEST SURVEY BULLETIN

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THE MORE IMPORTANT RECORDS FOR AUGUST

During the early part of August hatching of second-generation M. mexicanus Sauss. continued in southeastern Colorado and contiguous areas, and as far north as central Nebraska. Nymphs were present in varying numbers and instars and egg in various stages of development, indicating a prolonged progressive hatch. Indications were that the infestations might become severe; however, egg desiccation caused a heavy reduction in viability in the southern part of the area. In some Texas Panhandle counties baiting was continued against M. differentialis (Thos.) and Aeolophus turnbulli Thos. Local dissemination of M. mexicanus and M. pivittatus Say were reported in the upper Red River Valley area in North Dakota and Minnesota, where baiting was continued late in the month, particularly in Minnesota, to protect crops remaining after grain harvest. Dispersal flights of M. mexicanus occurred in central Montana, including Phillips, Valley, Treasure, Yellowstone, Cascade, and Judith Basin Counties. Gravid females were numerous in this section and egg laying was under way during the early part of the period. Observations for D. longipennis Thos. continued to reveal a scarcity of this species although a previously unreported light infestation, consisting of one per 20 square yards, was found in Kiowa and Prowers Counties, Colo., and extending into Greeley County, Kans.

Mormon crickets had practically completed egg laying in Montana and Washington during the month. The egg survey in Washington showed a decrease in total acreage infested.

The European earwig was reported as doing some damage at Lewiston, Mont. In Idaho the insect is seriously numerous in the northern part of the State and has also been collected at Twin Falls. It is also seriously abundant in southern Washington.

The semitropical armyworm is seriously abundant in parts of Florida. Other species of noctuids are damaging the cannery pea crop in western Washington. More or less serious outbreaks of armyworm were reported from Maine, Pennsylvania, Ohio, and Minnesota.

Japanese beetle is more abundant than heretofore recorded in Connecticut. Similar conditions are reported from the northern part of the infested area of the Hudson River Valley of New York State, on the periphery of the infested area in Pennsylvania and Virginia.

The weevil Pseudocneorrhinus setosus Roelfs was recorded from New York State for the first time in August.

Say's stinkbug continued to be a serious pest in parts of Nebraska, Oklahoma, Texas, and Utah.

Chinch bug was seriously numerous in southwestern Oklahoma and the bordering section of Texas.

Corn leaf aphid damaging corn from New York to Nebraska, also reported in southwestern Oklahoma.

European corn borer generally reported over the eastern part of the infested area, with heavy infestations in western New York and in the Philadelphia area of Pennsylvania.

Complete defoliation of alfalfa by the alfalfa caterpillar is reported from California.

Vetch bruchid continued to spread in western Oregon.

Codling moth is more abundant than last year in Connecticut, in parts of Virginia, and from Ohio westward to Illinois.

Heavy infestations of white apple leafhopper are reported from New England southward to Virginia.

Severe infestations of European red mite are reported from New England, New York, and Pennsylvania.

For the first year since 1923, the Elberta peach crop was harvested before second-generation plum curculio eggs were laid.

The known area infested by pear psylla in Washington State was found to be materially larger than previously anticipated.

Blister beetles continued to be reported as abundant over the entire country east of the Rocky Mountains.

Very heavy infestations of trucking areas by the southern mole cricket were reported from Florida.

Squash bug quite generally reported over the greater part of Eastern States.

Severe damage by melon aphid is reported from southern Oklahoma and northern Texas.

Pepper weevil damaging pepper crop in California as high as 50 percent in some fields.

Boll weevil damage, although not abnormally light except in Texas, was building up rapidly during the month over the greater part of the Cotton Belt.

Cotton leaf worm was spreading during the early part of August and threatens late fields and top cotton over much of the Cotton Belt.

General moderate damage by bollworm is reported throughout the Cotton Belt.

Serious injury to cotton by red spiders is reported from the Carolinas, Mississippi, and Arkansas.

Fall webworm numerous in the New England States, South Carolina, Mississippi, Ohio, and Minnesota.

An outbreak of the saddled prominent also reported from New Hampshire, Vermont, and northern New York.

Complete defoliation of several thousand acres by forest tent caterpillar was reported from New York State, but in most of New England and in Minnesota the recent outbreak has subsided.

Elm leaf beetle generally prevalent throughout New England and the Middle Atlantic States.

Heavy outbreaks of the larch sawfly are reported from New England.

Locust leaf miner severely browning the leaves of black locust from Pennsylvania southward to Tennessee.

A severe outbreak of the pine tube moth is reported from West Yellowstone, Wyo.

THE MORE IMPORTANT FEATURES IN CANADA FOR JULY AND AUGUST

In the Prairie Provinces the heaviest grasshopper infestations developed in southwest Saskatchewan and southeast Alberta. In the former region grasshoppers were particularly severe over 1,200 square miles in the Claydon-Robsart-Govanlock area, where all crops were completely destroyed and pastures heavily damaged. Elsewhere in Saskatchewan, except locally, the infestation appeared to be lighter than usual. The most important species in Saskatchewan this season is the lesser migratory grasshopper. In southeastern Alberta crops were seriously damaged and most of the stubble crops were destroyed. Migrations began in July from southwest Saskatchewan in a north and northeasterly direction, and from southeast Alberta toward the north and northwest. In Saskatchewan the concentration of the flights had evidently been greatly reduced by the enormous numbers of grasshopper poisoned and, although grain heads, particularly oats, were being cut to a considerable extent, this type of damage was, on the whole, much lighter than in recent years. In Alberta by mid-August the migrating grasshoppers had spread over much of the southern part of the Province and were beginning to damage oats and barley. In Manitoba a build-up in the grasshopper population over 1939 was indicated and considerable poisoned bait was distributed. Moderate-to-severe injury to grain crops occurred locally in July and in some districts oats were cut early to prevent further damage. Surveys of adult grasshoppers in the first half of August showed a general increase in the infestation, some flights and

local head damage had occurred, and egg laying had begun. In the interior of British Columbia grasshoppers were scarce, notwithstanding prolonged hot, dry weather.

Heavy infestations of the variegated cutworm were reported in July on Prince Edward Island in the East, and on Vancouver Island in the West.

The wheat stem sawfly infestation was severe in Alberta from Statler southward. The insects were cutting wheat in many southern districts in the early part of August, losses as high as 15 percent in certain localities being reported. Considerable damage also occurred in Saskatchewan.

Say's stinkbug increased under ideal weather conditions in southern Alberta in July and considerable numbers moved into grainfields in localized areas. Loss of about 5 percent in some winter wheatfields was reported at the end of July, and as high as 30 percent marginal loss in spring wheat was threatened in the Retlaw district. The crop damage occurred from Taber to Grassy Lake, and from Turin and Lomond.

A widespread outbreak of the beet webworm developed throughout the Prairie Provinces. Large flights of the moths were reported at various points early in July, and subsequently great numbers of the larvae appeared on weeds, various garden plants, beets, alfalfa, and sweetclover.

Blister beetles were reported to be prevalent in localities from eastern Ontario to Prince Edward Island. They were also unusually abundant throughout the three Prairie Provinces, causing damage to garden and field crops and ornamentals. Several species of the beetles were involved.

Sweet corn was heavily infested by the European corn borer in southern and eastern Ontario and southern Quebec. In the Ottawa district a large part of the crop was unmarketable.

Adults of the imported cabbage worm were exceptionally numerous in eastern Ontario during August, and a heavy infestation of the larvae developed on cruciferous plants.

An infestation of the pea aphid affecting 2,000 acres of canning and seed peas in the Taber-Barnwell district of southern Alberta was the most severe on record for that area. The species was also abundant and injurious in localities in eastern Ontario and southern Quebec.

In the Annapolis Valley, Nova Scotia, where the codling moth has not been an important pest in past years, an increase of this species has occurred and damage in some orchards is severe. In the Niagara district, Ontario, cold wet weather in spring and early summer retarded development so that, in the first part of July, the insects were about 2 weeks behind the average for the last 5 years.

An increase in abundance of the gray-banded leaf roller and the eye-spotted bud moth was noted in apple orchards in the Annapolis Valley, Nova Scotia. A severe outbreak of the latter species occurred in Ontario, particularly in the eastern and southwestern portions of the Province. An increase was reported in Prince Edward Island.

Infestation of the Pacific mite is on the increase in the Oliver district, British Columbia.

Peach-twig infestation by the oriental fruit moth is much higher than last year in the Niagara district, Ontario.

The fall webworm is unusually abundant and conspicuous in Ontario, and along the Ottawa and St. Lawrence Valleys.

The European spruce sawfly has increased generally in Quebec and Ontario, and new distribution records have been obtained in Gray and Bruce Counties, in the latter Province.

GENERAL FEEDERS

GRASSHOPPERS (Acrididae)

- General. B. M. Gaddis (August 31): A build-up in populations and dispersal of the lesser migratory and the two-striped grasshoppers is reported from the southern half of South Dakota. Heavy populations which may represent migrations were reported from northwestern Minnesota.
- Missouri. L. Haseman (August 20): Common species of meadow grasshoppers throughout central Missouri have been extremely abundant and in places have considerably damaged vegetation, even eating out the forming tassels of sweet corn. Most of them have reached the adult stage. During August the two-striped grasshopper (Melanoplus bivittatus Say), the Carolina grasshopper (Dissosteira carolina L.), the differential grasshopper (M. differentialis Thos.), and M. mexicanus Sauss. appeared in central Missouri in the order listed above, so far as abundance is concerned. All have been observed to be mating and with fully developed eggs.
- Kansas. H. R. Bryson (August 27): Injury observed recently on corn and sorghum in Jewell, Cloud, and Clay Counties. Worst injury occurred in Jewell County. Population in southeastern counties is of little consequence. Reported as plentiful in Comanche County.
- Oklahoma. F. A. Fenton (August 22): Few nymphs of M. mexicanus reported as being present in Cimarron County, indicating a very small partial second generation in that county.
- Montana. H. B. Mills (August 7): Boopedon mubilum Say more abundant in Hill and Big Horn Counties than for many years. Cutting heads of 200 acres of spring wheat 5 miles south of Hardin, Big Horn County. About 8 per square yard in some places. Damage moderate. Seen in considerable numbers 5 miles south of Cascade, Cascade County.
- Utah. G. F. Knowlton (August 9): Seriously abundant and 95 percent adult in Juab and Millard Counties. Seriously damaging crops at Mills, Levan, and West Nephi, and in northern Davis County.

MORMON CRICKET (Anabrus simplex Hald.)

- Montana. H. B. Mills (August): Comparatively large migration from Idaho over the Monida Pass into Beaverhead County on about August 5.
- Washington. L. G. Smith (August 14): Ninety-five percent of adults reported as dead in Franklin County for week ended August 3. Remaining crickets had from 5 to 20 percent of their eggs yet to be deposited. Oviposition practically complete in the Goodnoe Hills area of Klickitat County. Eggs concentrated largely along the edges of the fields, on the south slopes. For the week ended August 10 it was reported that the fall survey of adults showed a decrease in total acreage infested, but a larger number of heavy and moderately infested areas. Eggs found generally scattered throughout the infestations.

EUROPEAN EARWIG (Forficula auricularia L.)

Idaho. H. B. Mills (August 6): Occurring at State fish hatchery at Lewistown and causing light damage. First noticed there 6 years ago.

Idaho. J. C. Evenden (August 20): Firmly established throughout the northern part of State and is a serious pest.

J. R. Douglass (August 3): Specimens collected in a tourist park camp at Twin Falls.

Washington. L. G. Smith (July 31): Many observed in eastern counties. Great numbers invading gardens and homes in Ellensburg. Control campaign being considered at Pomeroy.

E. J. Newcomer (August 19): Very common in gardens at Yakima.

FIELD CRICKET (Gryllus assimilis F.)

Michigan. R. Hutson (August 23): Reported as causing trouble in houses in several places in southern Michigan.

CUTWORMS (Nectuidae)

Florida. C. S. Rude, et al. (August 3): Semitropical armyworm (Prodenia eridania Cram.) continues doing considerable damage in Lake and southern Marion Counties. No pupae could be found in one cottonfield, where small pigs had been eating them.

C. B. Wisecup (August 28): The cold winter appears to have limited effectiveness of parasites of P. eridania in the Sanford area, where they are attacking cowpeas, sweetpotatoes, and careless weed. Many waste areas heavily infested, so that later broods appear to be a definite menace to early fall vegetable crops.

Washington. L. G. Smith (July 19): Cutworms reported as causing severe damage to leaves and pods of canning peas in several fields between Satsop and Elma, Grays Harbor County. (July 27): Reported as very numerous in Snohomish County and a potential threat to crops. Pea vines examined at Stanwood on July 25. One field which had had pea crop taken from it contained an enormous number of cutworms of all sizes. From 150 to 175 larvae were found in an area 1 foot square.

California. A. E. Michelbacher (August 26): The yellow-striped armyworm (P. praeifica Grote) was abundant and damaging alfalfa in a few fields in the San Joaquin Valley.

ARMYWORM (Cirphis unipuncta Haw.)

Maine. J. H. Hawkins (August 17): Oats injured in two fields at Machias. Starlings observed feeding on them.

Pennsylvania. E. A. Richmond (August 28): Reported as causing damage in Huntington, Centre, Indiana, Somerset, and Clinton Counties.

Ohio. T. H. Parks (August 24): Outbreak developed in western Hardin County, north-central Ohio, late in July. Corn severely injured before control measures were applied. Outbreak limited to three or four farms and caused by second-generation larvae.

Minnesota. M. W. Wing (August 15): Present on barley, oats, and asters in Rice, Le Sueur, Hennepin, and Otter Tail Counties.

FALL ARMYWORM (Laphygma frugiperda A. & S.)

New York. N. Y. State Coll. Agr. News Letter (August 26): Observed on Long Island and in the Hudson Valley, eastern New York. Observed in Ontario County, western New York.

Virginia. H. G. Walker and L. D. Anderson (August 28): Rather severe damage caused in some fields of young cabbage and kale at Norfolk; not nearly so abundant on late corn as at this time last year.

Georgia. T. L. Bissell (August 26): Two specimens found on cowpea at Experiment Station, the first individuals seen since May when they were found on corn.

Mississippi. C. Lyle and assistants (August 26): Specimens received from Harrison County, where they were feeding on grass, and from Lincoln County, where they were feeding on corn and sorghum. Feeding on young corn in Pearl River County and on corn and on a lawn in Oktibbeha County.

BEEET WEBWORM (Loxostege sticticalis L.)

Minnesota. M. W. Wing (August 15): Heavily infesting most of the State.

Nebraska. H. D. Tate (July 23): Taken from sorghum in Hamilton County.

Utah. G. F. Knowlton (August 1): Abundant in light-trap catches at Syracuse and moderately abundant at Spanish Fork.

ALFALFA WEBWORM (Loxostege commixtalis Walk.)

Nebraska. H. D. Tate (August 16): Specimens received from Dawson County on July 17. Adults reported as numerous in alfalfa and catfields. Heavy flight reported in Scotts Bluff County on July 27. (Det. by O. S. Bare.)

JAPANESE BEETLE (*Popillia japonica* Newm.)

Connecticut. A. W. Morrill, Jr. (August 22): Observed in field of sun-grown tobacco in East Hartford. Apparently they had been driven to tobacco by destruction of a plot of grassland adjoining. Part of this grassland remained and showed a heavy admixture of jointweed which was heavily infested. Attacked mostly the noncommercial upper leaves of tobacco but had done occasional heavy damage to middle leaves.

J. P. Johnson (August 23): Adults causing more damage in Greenwich, Stamford, Fairfield, Bridgeport, Stratford, New Haven, Hamden, Hartford, and other towns, than ever before. Linden, elm, mountain ash, and gray birch are among the shade trees being defoliated. Grapes, peaches, early apples, nectarines, and plums have been seriously attacked in a commercial orchard in Greenwich.

New York. M. D. Leonard (August 26): Less numerous than last year on World's Fair grounds at Flushing. Very few beetles in traps during last few days.

N. Y. State Coll. Agr. News Letter (August 12): In Westchester County, eastern New York, the 1939 spring survey showed an average population of 17.7 grubs per square foot, obtained from 91 diggings well distributed over the area south of the Croton Reservoir. Highest number from 1 square foot of sod was 83 at North Castle. The 1940 survey entailed 159 diggings over the entire county. The average population was 19.1 grubs per square foot, including the northern part of the county, where the population is lighter. The highest number found was 102 at Eastview. The southern part of the county has suffered most, feeding being particularly severe on linden, willow, elm, sassafras, rose, Virginia creeper, apple, cherry, and grape. Feeding injury particularly noticeable in the southeastern portion of Orange County. Beetles very abundant all over the "flats" in Ulster County. Widespread infestation found south of Highland. It is evident that infestation is now present in heart of Hudson Valley fruit-growing area. Very prevalent on practically every farm in Rockland County, being especially noticeable attacking sweet corn tassels and tomatoes. (August 19): For the first time a specimen has been submitted from Auburn, Cayuga County, where traps have been placed about the city for from 5 to 7 years. Also found feeding on shrubbery.

New Jersey. M. D. Leonard (August 21): Reported as not so numerous in northern part of Bergen County as last year. Observed around Ridgewood but doing less feeding than last season.

Delaware. L. A. Stearns (August 9): Damage on both fruit and shade trees, especially the more favored ones, as heavy as in 1939 in New Castle County. Emergence, though late, coincided with the period of extremely hot weather late in July, and attack was short but severe. Injury fully as extensive in the vicinity of Dover, central part of Kent County, as in New Castle County. Infestation very light in several localities in northern part of Sussex County.

Pennsylvania. T. L. Guyton (August 22): Less abundant in the Philadelphia and Harrisburg areas than last year. Numerous in parts of Lancaster, Chester, and Berks Counties.

E. A. Richmond (August 28): This beetle has increased in abundance this year in Union, Northumberland, and Monroe Counties.

Virginia. H. G. Walker and L. D. Anderson (August 28): Much more abundant in eastern Virginia than ever before. Apple trees and grapevines defoliated, and field corn severely damaged near New Church. Near Norfolk 1,580 beetles were caught in 24 traps.

GREEN JUNE BEETLE (Cotinis nitida L.)

New York. E. P. Felt (August 26): Numerous on Long Island.

Virginia. A. M. Woodside (August 14): Abundant in bait traps near Fishersville.

Georgia. T. L. Bissell (August 19): Common in cowpea fields at Experiment.

Oklahoma. F. A. Fenton (August 22): Reported as injuring fruits at Muskogee.

FULLER'S ROSE BEETLE (Pantomorus godmani Crotch)

California. L. M. Smith (August 1): Abundant in many raspberry patches in the Santa Clara Valley. Eggs are being laid. More abundant than at any time since 1932.

A WEEVIL (Pseudocnecorrhinus setosus Roelofs)

New York. C. A. Weigel (August 9): Collected on forsythia, rose, fern, and rhododendron on Long Island on August 1. (Det. by L. L. Buchanan.)

A LONG-HORNED WEEVIL (Calomycterus setarius Roelofs)

New York. W. H. Manson (August 8): Overrunning property at Millertown, Dutchess County, in the Hudson Valley. (Det. by L. L. Buchanan.)

ASIATIC GARDEN BEETLE (Autoserica castanea Arrow)

New York. N. Y. State Coll. Agr. News Letter (August 12): Very heavy flight in Nassau County, eastern New York, for this time of year.

SAY'S STINKBUG (Chlorochroa sayi Stal)

Nebraska. H. D. Tate (July 28): On potato plants in Scotts Bluff County.

Oklahoma. F. A. Fenton (August 22): In Texas and Cimarron Counties, causing severe losses to late-planted wheat.

Texas. R. K. Fletcher (July 29): Present on cotton in Pecos County.

A. J. Chapman (August 10): On cotton in Presidio County.

Utah. C. J. Sorenson (July 19): Severe injury to spring wheat at Roosevelt.

CEREAL AND FORAGE - CROP INSECTS

WHEAT

BLACK GRAIN STEM SAWFLY (Trachelus tabidus F.)

General. C. C. Hill (August): Examination of wheatfields in Pennsylvania during June and July showed 4-percent infestation of culms in Franklin County. No infestation in other parts of the State. Wheatfields in Kent and Newcastle Counties, Del., showed less than 1-percent infestation. On the Eastern Shore of Maryland on July 31 and August 1 infestations were 4 percent in Cecil County, 5 percent in Queen Anne County, and none in Dorchester County. Infestation in western Maryland was 10 percent in Baltimore County, 4 percent in Carroll County, 7 percent in Montgomery County, and none in Frederick and Washington Counties. Infestations in Virginia, by counties, were as follows: Augusta, 1 percent; Campbell, 2 percent; Caroline, 2 percent; Essex, 3 percent; Fauquier, a trace; Rockbridge, a trace; and Shenandoah, 1 percent.

EUROPEAN WHEAT STEM SAWFLY (Cephus pygmaeus L.)

Pennsylvania. C. C. Hill (August): Survey of wheatfields showed infestations of 2 percent in Adams, Berks, Cumberland, Huntingdon, Lycoming, Mifflin, and Perry Counties; 4 percent in Bucks County; 17 percent in Centre County; 1 percent in Lancaster County; and none in Lebanon, Lehigh, Northumberland, Union, and York Counties. Infestation had not yet reached counties farther west in the State.

WHEAT STRAW WORM (Harmolita grandis Riley)

Utah. G. F. Knowlton and F. C. Harmston (August 3): Injury is serious in some wheatfields at Ferrin.

WHEAT MIDGE (Thecodiplosis mosellana Gehin)

Michigan. R. Hutson (August 23): Specimen sent in from Charlotte, in southern Michigan. Rare in Michigan and has shown up in a few fields near Lansing for the first time in several years.

CORN

CHINCH BUG (Blissus leucopterus Say)

Pennsylvania. E. A. Richmond (August 28): Damage caused in several cornfields in Butler County.

Missouri. L. Haseman (August 20): First-generation distribution flight took place in central Missouri during week ended August 10. Owing to weather conditions, eggs are scarce in cornfields. In one corn patch the first generation was made up of over 10 percent of the short-winged form.

Kansas. H. R. Bryson (August 27): The exceptionally hot, dry weather which prevailed in the eastern third of the State during July reduced the population of first-generation nymphs to such an extent that a very small second brood resulted. Very little injury to late sorghums noted.

Nebraska. H. D. Tate (July 19): Control request received from Otee County.

Oklahoma. F. A. Fenton (August 22): Seriously infested the June corn crop in some eastern sections.

R. G. Dahms (August 24): Infestation heavy in southwestern Oklahoma but second-generation bugs were about 10 days later than normal, severe injury being confined to susceptible varieties and fields of late-planted sorghums. Egg laying of second-generation adults began about August 5 and third-generation nymphs are now abundant on sorghums.

Texas. R. G. Dahms (August 24): Worst outbreak in many years in sorghum-producing area in vicinity of Chillicothe, Hardeman County, bordering southwestern Oklahoma. All susceptible sorghum varieties have been severely injured.

CORN LEAF APHID (Aphis maidis Fitch)

New York. N. Y. State Coll. Agr. News Letter (August 26): Covered one large field in Genesee County, western New York, clusters being present in rather large numbers on the tassel stalk of nearly every plant and injury was very evident. Well established over 18 acres.

Ohio. T. H. Parks (August 21): Damaged corn in many northern and western counties. Responsible for many barren stalks. Hybrid strains seem very susceptible.

Illinois. C. C. Compton (August 24): More abundant than for several years. Infestation general over State. Held in check by parasites and predators.

Michigan. R. Hutson (August 23): Reported from several counties in southern Michigan.

Minnesota. M. W. Wing (August 15): Present on corn at Albert Lea, Freeborn County, and in Murray County.

Nebraska. H. D. Tate (August 16): Observed on corn in Madison County on July 30. Heavy infestations reported from Dundy and Holt Counties on July 31 and August 7, respectively, and specimens taken from corn were received from Phelps County on August 13.

Oklahoma. R. G. Dahms (August 24): Very common on sorghums in southwestern Oklahoma.

A PENTATOMID (Euschistus variolarius Beauv.)

Missouri. T. E. Birkett and P. C. Stone (August 2): Large infestation observed on July 5 in 2-acre field in Henley, Cole County. Average of 19 adult and late-instar bugs per hill killed in 11 rows of corn on north side of field.

EUROPEAN CORN BORER (Pyrausta nubilalis Hbn.)

Maine. J. H. Hawkins (August 27): Present in many fields and gardens in Maine. Especially abundant in early planted sweet corn.

Massachusetts. A. I. Bourne (August 23): First eggs of second brood observed early in week beginning August 4.

Connecticut. N. Turner (August 22): First generation on sweet corn much less abundant than last year, owing to unfavorable weather in June. Second-generation larvae developing rapidly, and infestation is heavy.

New York. N. Y. State Coll. Agr. News Letter (August 19): Eggs are being laid steadily in a number of fields on Long Island and in the Albany area. Emergence of second-generation moths is nearly complete, and small larvae of the new generation are beginning to appear. Second-generation eggs were laid later than usual generally. (August 19): In western New York, in Monroe County, the corn borer is more abundant than for some years, causing serious loss in some fields. In Niagara County they seem to be causing more damage than in any recent time. Causing some damage to sweet corn in Erie County. (August 26): Quite an infestation in sweet corn at two or three places in Genesee County.

Pennsylvania. J. P. Slesman (August 2): Very heavy in the Philadelphia area, some fields showing 100-percent infestation, especially in sweet corn.

CORN ROOTWORM (Diabrotica longicornis Say)

Tennessee. G. M. Bentley (August 23): Reported as injuring corn at Kingston Springs, Cheatham County.

Arkansas. D. Isely (August 26): Caused severe damage to corn in Independence County, destroying approximately 50 percent of the stand in a 100-acre field. Unusual species in this State.

Nebraska. H. D. Tate (August 16): Adults sent in from Burt County on July 30.

COMMON RED SPIDER (Tetranychus telarius L.)

Idaho. C. J. Sorenson (August 19): Serious damage to corn at North Logan started on about July 20. Within 2 weeks much of the corn in three fields was so badly damaged that further development was prevented. Still active on corn.

ALFALFA AND CLOVER

ALFALFA WEEVIL (Hypera postica Gyll.)

Idaho. C. J. Sorenson (August 6): Reported as doing considerable damage to alfalfa (first and second crops) in Millard County. Second crop seriously checked in initial stages in many fields. Less damage done generally than in 1939. (August 19): A few nearly mature larvae observed in an alfalfa field at Logan today. Occurrence this late is uncommon in this area.

California. A. E. Michelbacher (August 26): Found to be rather scarce in the infested part of the San Joaquin Valley on August 23. The number of larvae collected per 100 sweeps in the different fields ranged from 0 to 22, and the number of adults from 0 to 5.

ALFALFA CATERPILLAR (Colias eurytheme Bdv.)

California. A. E. Michelbacher (August 26): In some fields near Westley larvae have caused considerable damage. In one field 6,300 larvae were collected per 100 sweeps. In another field where no counts were made the population must have exceeded the above, and alfalfa over a large part of the field was completely defoliated. A wilt disease was making its appearance but had not reached epidemic proportions in this region. In some other fields it appeared that the disease had saved the alfalfa. The parasite, Apanteles flaviconchae Riley also appeared to be of some value in reducing damage 80 to 90 percent of the small larvae being parasitized in some fields.

A MEMBRACID (Campylenchia latipes Say)

Utah. G. F. Knowlton (July 31): Abundant on and damaging alfalfa and sweet-clover at Eden. Often 10 to 15 adults per stem.

CLOVER SEED CHALCID (Bruchophagus gibbus Boh.)

Utah. C. J. Sorenson (August 19): Infestation in Logan, Cache County, approximating 10 percent in seed of second-crop alfalfa. Adults now emerging from the seed.

Utah. C. J. Sorenson (August 19): Heavy infestations of L. elisus hesperus Knight and L. elisus Van D. in rank, succulent alfalfa fields in the Fillmore, Delta, and Logan districts, and on a weed in the Delta area.

THRIPS (Thysanoptera)

Utah. G. F. Knowlton (July 18): Very abundant on alfalfa left for seed at Calais, Juab County.

COWPEA

COWPEA CURCULIO (Chalcodermus aeneus Boh.)

Georgia. T. L. Bissell (August 19): Larvae very abundant in dry peas picked last week at Experiment.

VETCH

VETCH BRUCHID (Bruchus brachialis Fahraeus)

Oregon. L. P. Rockwood and M. M. Reeher (August 5): Columbia and Polk Counties found to be infested in 1940 survey. Found 1/2 mile inside the eastern edge of Columbia, and as far south as 4 miles north of Independence in Polk County, but only in a narrow strip between Ecla Hills and Willamette River. Thin population in the northwestern corner of Linn County, north and east of Albany. In Yamhill County the western limit is about 5 miles west of McMinnville, and in Washington County the western limit is in the foothills of the Coast Range, about 25 miles west of Portland.

Washington. L. P. Rockwood and M. M. Reeher (August 5): No extensions of the northern margin of the infested area were found in 1940. This area, consisting of parts of Skamania, Clarke, and Klickitat Counties, is directly north of and contiguous to the infested area in Oregon.

VELVETBEAN

VELVETBEAN CATERPILLAR (Anticarsia gemmatilis Hbn.)

Mississippi. T. F. McGehee (August 26): Feeding on velvetbeans in Harrison County.

SUGARCANE

SUGARCANE BORER (Diatraea saccharalis F.)

Louisiana. A. L. Dugas (August 28): Infestation throughout the sugar belt is lower this year than it has been in many years. In spite of the scarcity of borer eggs, parasitization by Trichogramma is rather high.

FRUIT INSECTS

SHOT-HOLE BORER (Scolytus rugulosus Ratz.)

Mississippi. C. Lyle and assistants (August 26): Numerous in weakened trees in Meridian area and on peach trees in Hinds and Bolivar Counties.

California. G. F. Knowlton (August 4): Attacking peaches, apricot, and hawthorn, causing serious injury to some trees.

California. L. M. Smith (August 1): Adults found boring into stem end of peach fruits at Modesto, Stanislaus County. Infestation severe on prunes in Sonoma County, killing from one-third to one-half tree in many cases.

A LEAFHOPPER (Phelpsius ishidae Mats.)

New York. E. P. Felt (August 26): Reported as injuring hazel and apple foliage in the New York Botanical Garden, producing a condition suggestive of leaf scorch. (Det. by P. W. Oman.)

SAN JOSE SCALE (Aspidiotus perniciosus Comst.)

Georgia. O. I. Snapp (August 13): Infestation on peach trees at Fort Valley, central Georgia, still lighter than that of average year.

Mississippi. C. Lyle and assistants (August 26): Reported as abundant enough to kill some trees in a peach orchard in Claiborne County. Heavy infestations on untreated trees reported from Meridian area.

Oklahoma. F. A. Fenton (August 22): Reported on peach at Stuart.

A MEALYBUG (Phenacoccus aceris Sign.)

British Columbia. E. J. Newcomer (August 2): Rather abundant on apple, pear, plum, and cherry at Nelson. Has been present in the Kootenay Lake area for 20 years.

APPLE

CODLING MOTH (Carpocapsa pomonella L.)

Connecticut. P. Garman (August 22): Considerably more abundant than in 1939. Serious infestation in at least one large apple orchard in Middlesex County.

New York. N. Y. State Coll. Agr. News Letter (August 5): In eastern New York in the Hudson Valley, there has finally been a definite gap between late first-brood and early second-brood larval entries. Very few entered the fruit from July 29 to August 3. Second-brood moths began to emerge in orchards about July 24, but emergence has been light and apparently has not reached its peak. In western New York, in Erie County, entrances and stigs are showing in considerable numbers in poorly treated orchards. In Niagara County eggs have been laid during last 2 weeks. Fresh entrances found throughout last week in heavily infested orchards. Eggs much less numerous, indicating that the first brood was about through and the second brood just getting under way. Considerable sideworm injury noticed on pears. In Monroe County the very active work of last 10 days has about ceased, except in the lake shore where new entrances continued to show up throughout the week. Injury serious in some orchards.

Delaware. L. A. Stearns (August): Situation throughout State very good for this time of year. Heavy moth flights about July 25 to 31 and from August 8 to 10.

Virginia. A. M. Woodside (August 22): Moth flight heavy and fruit infestation increasing in Augusta County.

Ohio. T. H. Parks (August 26): Moths emerging and in flight throughout July and August. Control measures necessary because of severe damage to apple orchard.

- Indiana. L. F. Steiner (August 15): Very heavy hatch occurred during the last 3 weeks in the Vincennes area and no let-up is in sight. Second-brood larvae are beginning to leave apples in considerable numbers. (August 22): Catches in traps in Vincennes area fell off temporarily, owing to cooler weather, but are again increasing, the catch on August 21 being the largest since August 9. Population in 10 trees increased from 50 last week to 61 today. This is within 3 moths of the average during the period of maximum abundance, extending from July 18 to August 1. Males exceeded females by 50 percent, indicating that second-brood adult emergence is getting under way, as males predominate at the beginning of each brood.
- Illinois. C. C. Compton (August 24): Following peak of emergence for week ended August 17, trap catches fell off because of cold weather. Heavy emergence during week ended August 24, indicating that emergence is being prolonged over a longer period than normally.
- Kentucky. M. L. Didlake (August 26): Second-brood damage to apples reported as unusually severe in western Kentucky fruit districts.
- Michigan. R. Hutson (August 23): Egg laying heavy from August 7 to 15.
- Missouri. L. Haseman (August 20): Peak of second-brood moths occurred late in July and heavy rains early in August materially interfered with August larvae throughout most of State.
- Missouri and Kansas. H. Baker (August 27): In northwestern Missouri and northeastern Kansas, first brood moths began emerging July 6 to 9. Peak emergence occurred July 27 to August 6. Bait catches were heavy from July 25 to August 8 and have continued at a moderate level when weather conditions favored their activity. Activity during August was curtailed considerably because of cloudy and rainy weather.
- Washington. C. C. Alexander and M. A. Yothers (August 20): Large numbers caught in baits at Yakima the last month. There has been no definite peak although a high point was reached on August 4 and another from August 16 to 18. Oviposition heavy throughout month. Beginning about July 10, some larvae failed to pupate, and for week ended July 19, 4 percent showed indications of delaying pupation until spring. Increase in number of larvae leaving fruit during last week.

FRUIT TREE LEAF ROLLER (Cacopcia argyrospila Walk.)

- Missouri. L. Haseman (August 20): Unusual abundance of egg packets reported throughout northeastern quarter of State.

APPLE MAGGOT (Rhagoletis pomonella Walsh)

- New York. N. Y. State Coll. Agr. News Letter (August 5): Emergence is about complete in Rockland County. Flies fairly numerous in some orchards.

WHITE APPLE LEAFHOPPER (Typhlocyba pomaria McAtee)

Massachusetts. A. I. Bourne (August 23): Second brood normally abundant in the Valley.

Connecticut. P. Garman (August 22): Infestations threaten many apple orchards throughout New Haven County.

Delaware. L. A. Stearns (August 9): Heavy infestation on apples at Bridgeville today.

Virginia. A. M. Woodside (August 22): Fairly heavy infestation in a few apple orchards in Augusta County. About half have reached the adult stage. Infestations greatly reduced in some orchards by parasitization of the first brood by a dryinid.

LEAFHOPPERS (Erythroneura spp.)

Missouri and Kansas. H. Baker (August 27): Unusually abundant on apple throughout northwestern Missouri and northeastern Kansas.

COMSTOCK'S MEALYBUG (Pseudococcus comstocki Kuw.)

Virginia. G. J. Haussler (August 14): Adult female specimens and probably some third-instar nymphs collected today on apple at Cotesville, Albemarle County.

West Virginia. G. J. Haussler (August 23): Specimens collected on apple at Knowlesville. (Det. by H. Morrison.)

EUROPEAN RED MITE (Paratetranychus pilosus C. & F.)

Massachusetts. A. I. Bourne (August 23): Became very numerous early in August owing to weather, but has largely subsided.

Connecticut. P. Garman (August 22): Infestation on apples severe in many places. Control measures not very successful, because of weather.

New York. N. Y. State Coll. Agr. News Letter (August 5): In eastern New York in Rockland County, the red mite has been more generally serious than for several years. In western New York, in Niagara County, they have increased to alarming proportions in some apple orchards.

Pennsylvania. E. A. Richmond (August 28): Some damage caused in apple orchards in the northeastern section of the State. Found to be abundant in several orchards in Lawrence County, in the western part of the State.

Michigan. R. Hutson (August 23): Severe in scattered orchards throughout the fruit area from Benton Harbor to Manistee.

PEACH

ORIENTAL FRUIT MOTH (Grapholitha molesta Busck)

Connecticut. P. Garman (August): Peaches are being attacked about the same as last year.

New York. N. Y. State Coll. Agr. News Letter (August 19): Second brood in Niagara County, western New York, is damaging fruit much more than usual.

Georgia. O. I. Snapp (August 1): Of 10,589 ripe Elberta peaches carefully examined 85, or 0.8 percent, were found to be infested with larvae, as compared with 0.24 percent in 1939. These peaches were harvested from a commercial orchard near Fort Valley, in which no control measures had been enforced. Absence of host for the maturity of hibernating broods of larvae is responsible for light infestation in the commercial orchards at Fort Valley.

Mississippi. C. Lyle and assistants. (August 26): Specimens of injured peach twigs received from Lowndes County. Moderately light infestations reported generally from the Meridian area and in Madison County. Continued attacks on peach trees reported from the northeastern counties. Larva taken from a sand pear in Greene County.

Texas. F. L. Thomas (August 6): Second generation observed causing considerable damage in peach orchards in Macogdoches, Montague, Ellis, and Milam Counties.

R. K. Fletcher (August 13): Causing severe damage to peach and plum in Harrison, Fisher, Erath, and Milam Counties.

LESSER PEACH BORER (Conopia pictipes G. & R.)

Missouri. L. Haseman (August 20): Reported as unusually heavy in some peach orchards in southeastern Missouri.

PLUM CURCULIO (Conotrachelus nenuphar Hbst.)

Delaware. L. A. Stearns (August 23): Infestation generally light on peach at Bridgeville. Peak of emergence of adults of summer brood occurred on July 16.

Michigan. R. Hutson (August 23): Damage common on peaches in southern Michigan.

Georgia. O. I. Snapp (August 13): First year since 1923 that the Elberta peach crop in Georgia was not subjected to at least a partial second-brood attack. Entire crop of Georgia peaches was harvested before the deposition of second-generation eggs. Mature second-generation eggs were not found in the bodies of first-generation females until July 26. First mature eggs of second-generation were found in the body of a female that emerged from the soil on June 20, the period between adult emergence and maturity of first eggs of second generation being 36 days. A number of females began to deposit second-generation eggs during the first week in August. Adult population in central Georgia peach orchards is lighter now than that of an average year.

Mississippi. M. L. Grimes (August 26): Caused some injury to late peaches in the Meridian area.

Texas. W. McGregor (August 13): Severe damage to peach and plum throughout the eastern and northern fruit-growing districts.

PEACH AND PLUM SLUG (Eriocampoides amygdalina Rohw.)

Alabama. F. E. Guyton (July 24): Causing heavy damage to peach leaves at Auburn.

PEAR

PEAR PSYLLA (Psylla pyricola Foerst.)

Washington. L. G. Smith (August 9): Infestations found at four points between Ritzville and Lind, in Adams County, and at two points near Connell, in Franklin County. This represents an extension of the known infestation considerably.

PEAR LEAF BLISTER MITE (Eriophyes pyri Pgst.)

Maine. H. B. Peirson (August 19): Very abundant on pear foliage at Manchester on June 6.

PEAR SLUG (Caliroa cerasi L.)

Washington. E. J. Newcomer and F. W. Carlson (July 30): Very numerous on pear and cherry at White Bluffs and Hanford, Benton County. (August 14): Very numerous on pear and cherry in Kittitas County.

PLUM

A BORER (Carposina comonana Kearf.)

California. D. F. Barnes (May): Five or six adults were taken per day for about 2 weeks in the middle of May in each of three malt-sirup bait traps operated in a plum orchard near Exeter, Tulare County. A second, smaller flight was indicated between July 9 and 30. (Det. by J. F. G. Clark.)

RASPBERRY

RASPBERRY CANE BORER (Oberea bimaculata Oliv.)

Maine. H. B. Peirson (August 19): Abundant at Hallowell on July 17.

Ohio. T. H. Parks (August 20): Specimens received from Sandusky and Marion. Many canes infested.

Utah. G. F. Knowlton (August 9): Tunneled from top to roots of most canes in a $\frac{1}{2}$ -acre raspberry patch at Centerville. Nearby patches of boysenberries and blackberries also infested.

A GEOMETRID (Synchlora aerata F.)

Massachusetts. A. I. Bourne (August 23): Specimens received on August 1 from a small planting near the college at Amherst. Very abundant and causing considerable damage.

A SAWFLY (Priophorus rubivorus Rohw.)

California. L. M. Smith (August 1): Larvae are causing serious damage to raspberries in the Santa Clara Valley, particularly in the district around Gilroy. Second generation largely in the pupal stage. More abundant than it has been since 1934. (Det. by W. Middleton.)

GRAPE

GRAPE BERRY MOTH (Polychrosis viteana Clem.)

New York. N. Y. State Coll. Agr. News Letter (August 12): Increased egg laying occurred on grapes in Chautauqua County, western New York, during the last week of July and for a few days in August, owing to the late emergence of the overwintered brood. First-brood emergence greatly increased from August 7 to 11. Second-brood egg laying very light. Infestation in some of the heavily infested vineyards lighter than last year, but first-brood damage is heavier in a number of plantings.

Michigan. R. Hutson (August 23): Eggs abundant at Lawton, Paw Paw, and Benton Harbor.

GRAPE LEAF FOLDER (Desmia funeralis Hbn.)

Mississippi. L. J. Goodgame (August 26): Caused injury to grape in Monroe and Prentiss Counties.

Missouri. L. Haseman (August 20): Much less abundant and destructive to grapes throughout central Missouri since the rains early in August.

GRAPE PHYLLOXERA (Phylloxera vitifoliae Fitch)

Minnesota. M. W. Wing (August 15): Present on grape in Ramsy and Hennepin Counties.

PECAN

PECAN SHUCKWORM (Laspeyresia caryana Fitch)

Mississippi. D. W. Grimes (August 26): Reported from Leflore County.

HICKORY NUT CURCULIO (Conotrachelus affinis Boh.)

Mississippi. C. Lyle and assistants (August 26): Specimens in pecan nuts received from Holmes and Washington Counties. Reported as damaging pecan nuts in Leflore County.

PECAN WEEVIL (Curculio caryae Horn)

Georgia. T. L. Bissell (August 10): Slowly emerging from soil. On August 8 10 weevils were jarred from 4 trees in an orchard at Zebulon, central part of State, heavily infested in 1939 and in previous years. Few punctured nuts.

CITRUS

CALIFORNIA RED SCALE (Aonidiella aurantii Mask.)

California. R. S. Woglum (August): Fully a month in advance of last season. Increase most noticeable in interior areas, owing to weather conditions, and greatest on oranges, which have been less intensively treated than have the lemons.

BLACK SCALE (Saissetia oleae Bern.)

California. R. S. Woglum (August): Both single- and double-brooded scale much lighter in all the coastal districts than for many seasons. Hatch practically complete in most orchards by end of July. Young are developing rapidly in size in the double-brooded area.

YELLOW SCALE (Aonidiella citrinus Coq.)

California. R. S. Woglum (August): Heavy summer build-up noticeable, causing injury by pitting fruit and dropping leaves.

FIG

RAISIN MOTH (Ephestia figulilella Greg.)

California. D. F. Barnes and G. H. Kaloostian (August): Comparison between overwintered larval populations and the spring flight of moths produced by the overwintered larvae made in two vineyards in Tulare County for this year and last. Larval population was reduced by about 90 percent in 1940, while the spring flight was reduced by 68 percent, indicating larger survival of overwintered larvae this winter than last. Lack of parasitization was important factor in this survival. Parasitization among overwintered larvae was 10.7 percent in 1939, as compared with 3.4 percent in 1940. Most abundant parasite was Idechthis canescens Grav.

CITRUS MEALYBUG (Pseudococcus citri Risso)

Mississippi. C. Lyle and assistants (August 26): Reported as numerous on fig on one property in Harrison County. Light infestation noted in a greenhouse in Lauderdale County.

A SCOLYTID (Stephanoderes ficus Hopk.)

Pennsylvania. F. B. Littlefield (August 15): Adult and larval specimens taken from a fig tree on August 10 at West Chester, in southeastern Pennsylvania. (Det. by M. W. Blackman and W. H. Anderson.)

TRUCK CROP INSECTS

BLISTER BEETLES (Meloidae)

Pennsylvania. E. A. Richmond (August 28): The ash-gray blister beetle (Macrobasis unicolor Kby.) has been especially abundant in the northeastern part of the State on tomatoes, potatoes, beans, and lupines.

Oio. T. H. Parks (August 26): Caused serious damage to cabbage and beans in some localities. Also reported as attacking tomatoes.

Kentucky. M. L. Didlake (July 24): Epicauta trichrus Pallas and E. cinerea Forst eating petals of cosmos at Shelbyville.

Alabama. J. M. Robinson (August 9): E. trichrus reported as attacking cotton at Huntsville.

Mississippi. C. Lyle and assistants (August 26): Reported as injuring garden crops in Jefferson County. Specimens of M. immaculata Say and E. lemniscata F. were collected in soybeans in Oktibbeha County. E. lemniscata injury also reported from northwestern counties, and observed feeding on sweetpotato plant in Choctaw County.

Missouri. L. Haseman (August 20): M. immaculata, M. unicolor, and E. cinerea marginata F. occurred in unusual numbers throughout the State during the month.

Minnesota. M. W. Wing (August 15): M. unicolor present at Baudette.

Nebraska. H. D. Tate (August 16): Numerous complaints received from eastern Nebraska during period from July 16 to August 15. E. lemniscata found attacking clover in lawns in Lancaster County on July 25. Specimens of E. maculata Say found on sorghum in Buffalo County. Heavy infestation of M. unicolor observed on potatoes in Lancaster County on July 23. Specimens of M. immaculata received from Webster and Buffalo Counties. Heavy infestation observed on potatoes in Lancaster County on July 23. Also observed on potatoes in Hamilton County and on Chinese elm in Nuckolls County on July 23.

Kansas. H. R. Bryson (August 28): Considerable injury to small trees in some areas. Injury to Chinese elms reported from Jewell County. Reports of injury also received from Linn, Comanche, Riley, Osage, Elk, and Marshall Counties.

Texas. R. K. Fletcher (August 13): E. lemniscata was causing severe injury to gardens in Harris County on July 29.

Utah. G. F. Knowlton (July 31): E. pennsylvanica Deg. was damaging alfalfa blossoms at Eden.

STRIPED CUCUMBER BEETLE (Diabrotica vittata F.)

Maine. J. H. Hawkins (August 1): Larval injury to roots of squash and cucumber and injury to leaves and stems by the adults caused complete destruction of one-half of certain plantings:

Louisiana. C. O. Eddy (August 28): The striped cucumber beetle is abundant on unsprayed cucumbers. The spotted beetle D. duodecimpunctata F. is becoming more abundant daily on soybeans cowpeas, cucumbers and garden beans.

POTATO LEAFHOPPER (Empoasca fabae Harr.)

Vermont. H. L. Bailey (August): Less abundant than for many years, according to observations in potato fields inspected for seed certification.

Ohio. N. F. Howard (August 8): Abundant and very injurious to late beans in the Columbus area.

Minnesota. M. W. Wing (August 15): Moderately abundant on potato at Benson.

Nebraska. H. D. Tate (July 25): Heavy infestation on potato plants in experimental plots on the Agricultural College campus.

GARDEN FLORA HOPPER (Halticus citri Ashm.)

Virginia. A. M. Woodside (August 22): Quite abundant on red clover and causing considerable damage in some locations in Augusta and Albemarle Counties, particularly in orchards; also attacking weeds, including morning-glory and chicory.

Florida. C. B. Wisecup (August 28): General infestation over entire Sanford district. Much damage to young celery seedlings in plant beds.

SOUTHERN MOLE CRICKET (Scapteriscus acletus R. & H.)

Florida. C. B. Wisecup (August 28): All the Plant City area, in eastern Hillsborough County, heavily infested. Infestation appears to be increasing each year, until it now has reached the peak noticed in the Sanford area about 4 or 5 years ago. Infestation in Sanford area apparently stable or declining.

POTATO AND TOMATO

COLORADO POTATO BEETLE (Leptinotarsa decemlineata Say)

Washington. L. G. Smith (August 7): Adult specimens received from Clarke County further substantiating the invasion of the insect into western Washington for the first time, presumably working their way down the Columbia River gorge. Severely damaged potato field observed north of Thorp, in the Kittitas Valley.

POTATO FLEA BEETLE (Epitrix cucumeris Harr.)

Connecticut. A. W. Morrill, Jr. (August 22): Second generation greatly retarded and did not last as long as usual. Emergence apparently normal in numbers at first but sporadic and peak not as high as usual.

New York. N. Y. State Coll. Agr. News Letter (August 19): Extremely numerous in many counties in the western and southern tier of counties of the State. Particularly severe in the West Falls district of Erie County and the Cohocton district of Steuben County.

Minnesota. M. W. Wing (August 15): Present at Redwood Falls and on potato at Benson.

HORNWORMS (Protoparce spp.)

New York. N. Y. State Coll. Agr. News Letter (August 19): Tomato worms present in small numbers in many fields in Erie County, western New York. (August 26): General on tomatoes in Monroe County, but damage is of little commercial importance, except in a few fields. Found generally in Wayne County but damage is less severe than last year.

Ohio. T. H. Parks (August 24): Tomato hornworms appeared in larger numbers than usual in fields of canning tomatoes over western Ohio, causing severe damage.

Nebraska. H. D. Tate (August 16): Requests for control on P. quinquemaculata Harris received from Seward and Platte Counties on July 22 and August 5, respectively.

BEANS

MEXICAN BEAN BEETLE (Epilachna varivestis Muls.)

Maine. H. B. Peirson (August 19): Pupating in Augusta region on August 11.

J. E. Hawkins (August 27): Spread throughout all territory west of the Penobscot River. Infestation is general, and commercial injury is rare even though increase is steady.

New York. N. Y. State Coll. Agr. News Letter (August 26): New generation is laying eggs. In eastern New York, on Long Island, bean beetles have recently become more numerous than at any time this season. New generation present in large numbers where early beans were grown and beginning to lay eggs in Columbia County.

Delaware. L. A. Stearns (August 23): Survey of extensive lima bean plantings in eastern Sussex County indicates very light infestation.

Georgia. T. L. Bissell (August 10): Adults emerging rapidly at Experiment and laying eggs. Very few larvae present. Considerable injury to lima beans.

Alabama. J. M. Robinson (August 15): Abundant at Auburn.

Mississippi. C. Lyle and assistants (August 26): Specimens received from Choctaw, Kemper, Hinds, Lauderdale, and Oktibbeha Counties, where beans are being injured. Heavy infestation reported in Leake County; general with serious damage in the Meridian area; and stripping beans and causing some injury to field beans and cowpeas in the northeastern counties.

BEAN LEAF BEETLE (Cerotoma trifurcata Forst.)

Kentucky. M. L. Didlake (August 26): Injurious in Shelbyville on July 24.

Mississippi. C. Lyle and assistants. (August 26): Abundant in gardens in Pearl River County, and generally infesting beans and cowpeas in the Durant area.

Louisiana. I. J. Becnel (August 28): Causing serious damage to soybeans in Caddo and Bossier Parishes.

BEAN APHID (Aphis rumicis L.)

Ohio. T. H. Parks (August 23): Serious and widespread in Columbiana County, northeastern Ohio, principally on navy beans.

Minnesota. M. W. Wing (August 15): Present on beans in Carver County.

GREEN STINKBUG (Acrosternum hilare Say)

Kentucky. M. L. Didlake (August 13): Severely injuring lima beans in Woodford County.

PEAS

PEA APHID (Macrosiphum pisi Kltb.)

Maine. H. B. Peirson (August 19): Very abundant on August 10 in small garden plots back in deep woods, 10 miles from nearest cleared land or farming area, in Washington County.

J. H. Hawkins (August 1): Not abundant enough in central Maine to cause commercial damage. A threatened serious infestation in many places was completely controlled by a disease.

PEA WEEVIL (Bruchus pisorum L.)

Washington and Oregon. L. G. Smith (July 30): About 25 percent less weevils reported than last year throughout the Blue Mountain pea-canning area, which lies in Columbia and Walla Walla Counties in Washington and in Umatilla County in Oregon. Very few appeared in later fields. Some adults developed in volunteer peas.

BEAN THRIPS (Hemithrips fasciatus Perg.)

Iaho. T. A. Brindley (July 26): All pea plants in a patch at Culdesac Nez Perce County silvered by the feeding of this thrips. (Det. by J. C. Crawford.)

CABBAGE WEBWORM (Hellula undalis F.)

South Carolina. F. Sherman and W. C. Nettles (August 26): Noticeable around Clemson on cabbage and collards.

HARLEQUIN BUG (Murgantia histrionica Hahn)

South Carolina. F. Sherman and W. C. Nettles (August 26): More noticeable after some scarcity early in season.

Mississippi. C. Lyle and assistants (August 26): Abundant in the Meridian area, and in Holmes and Pearl River Counties.

SQUASH

SQUASH BUG (Anasa tristis Deg.)

Maine. J. H. Hawkins (August 10): Very abundant and causing much injury to pumpkin and squash in central, western, and southern parts of State.

South Carolina. F. Sherman and W. C. Nettles (August 26): Abundant at Clemson in midsummer.

Mississippi. D. W. Grimes (August 26): Adults and young of A. armigera Say severely damaged gourds in Holmes County.

Oho. T. H. Parks (August 23): Very abundant on some plantings of squash.

Michigan. R. Hutson (August 23): Present in the southern part of the State.

Missouri. L. Haseman (August 20): Less abundant than usual throughout central Missouri.

Minnesota. M. W. Wing (August 15): Present on squash at Preston.

Oklahoma. F. A. Fenton (August 22): Second generation prevalent on pumpkins and late squashes at Stillwater, Inola, and Gotebo.

E. J. Newcomer (July 31): Very numerous on squash near Sunnyside, Yakima Valley.

Oregon. E. J. Newcomer (August 8): Reported to be plentiful in Umatilla County.

SQUASH BORER (Melittia satyriniformis Hbn.)

Massachusetts. A. I. Bourne (August 23): Reported as very generally abundant for first time in a number of years.

Michigan. R. Hutson (August 23): Requests for control received from several places in southern Michigan.

Illinois. C. C. Compton (August 24): Much less abundant in northern Illinois than for the last several years.

MELONS

MELON APHID (Aphis gossypii Glov.)

Michigan. R. Hutson (August 23): Present at Dearborn on July 26. Also present at Muskegon, Detroit, Zeeland, Grand Rapids, Chesaning, Sawyer, and Grandville.

Nebraska. H. D. Tate (July 15): Found on cucumber vines in Clay County.

Oklahoma. F. A. Fenton (August 22): Causing severe damage to cantaloups in the Muskogee trucking area.

Texas. R. K. Fletcher (August 13): Caused severe injury in Smith County on July 27, and in Tarrant County on July 31.

ASPARAGUS

ASPARAGUS BEETLES (Crioceris spp.)

Minnesota. M. W. Wing (August 15): C. asparagi L. and C. duodecimpunctata L. present on asparagus at St. Paul.

TURNIP

RED TURNIP BEETLE (Entomoscelis adonidis Pallas)

Montana. H. B. Mills (August 12): Attacking gardens at White Sulphur Springs, and Meagher County.

CELERY

A WEEVIL (Listronotus latiusculus Boh.)

Indiana. J. J. Davis (August 3): Larvae were doing considerable damage to celery in the northern part of the State. Specimens reared to the adult stage. (Det. by L. L. Buchanan.)

ONIONS

ONION THRIPS (Thrips tabaci Lind.)

Massachusetts. A. I. Bourne (August 23): Development and infestation very light in the Connecticut River Valley early in the season, owing to weather conditions, but built up rapidly during the latter part of July. Yield of seed onions seriously reduced because of weather conditions and infestations.

SWEETPOTATO

SWEETPOTATO WEEVIL (Cylas formicarius F.)

Mississippi. C. Lyle and assistants (August 26): Infestation will probably be lighter in the Poplarville area because of absence of volunteer sweetpotato plants. Numerous on perennial morning-glory plants along the beach in Jackson County, but not many found on farms.

STRIPED TORTOISE BEETLE (Metritona bivittata Say)

Mississippi. C. Lyle and assistants (August 26): Specimens received from Montgomery and Webster Counties. Reported as abundant in most sweetpotato fields in the Meridian area, as causing severe damage in Durant area, and as stripping plants in Tippah County.

ARGUS TORTOISE BEETLE (Chelymorpha cassidea F.)

Mississippi. J. G. Hester (August 26): Received from Webster County where sweet potatoes were being injured. Some damage done to sweetpotatoes in surrounding counties.

STRAWBERRY

STRAWBERRY CROWN BORER (Tyloderma fragariae Riley)

Kentucky. M. L. Didlake (August 26): Reported as severely injuring strawberry in Louisville area.

PEPPER

PEPPER WEEVIL (Anthonomus eugenii Cano).

California. R. E. Campbell (August): Infested peppers received from Santa Barbara County on August 23, which is the first record of the weevil in this county.

J. C. Elmore (August 23): Damaged peppers considerably this season in southern California, in Orange, San Diego, and Los Angeles Counties. Early fields damaged from 5 to 25 percent. Late fields, comprising about 25 percent of the acreage, damaged from 50 to 70 percent.

SUGAR BEETS

BEEF LEATHOPPER (Eutettix tenellus Bak.)

Utah. G. F. Knowlton (August 8): Curly-top injury to sugar beets and tomatoe throughout the State more severe than usual. (August 14): Cannors estimate that 40 to 50 percent of the tomato plants in several districts were destroyed, although some patches suffered little. Injury is becoming more conspicuous, causing little growth and considerable curly top.

TOBACCO

HORNWORMS (Protoparce spp.)

Connecticut. A. W. Morrill, Jr. (August 22): P. quinquemaculata Haw. and P. sexta Johan. unusually scarce. Appeared late and none of the individuals placed for hibernation in a protected cage emerged.

TOBACCO FLEA BEETLE (Epitrix parvula F.)

Florida. F. S. Chamberlin (August 15): Infestation unusually light throughout the tobacco-growing season in Gadsden County. Populations increased during latter part of the season, but caused only light damage.

PLANT BUGS (Euschistus spp.)

Kentucky. M. L. Didlake (August 26): E. servus Say and E. tristigmus Say were injuring tobacco and garden crops at Hodgenville on July 25.

TOBACCO THRIPS (Frankliniella fusca Hinds)

Connecticut. A. W. Morrill, Jr. (August 22): Scarce during first half of season to July 19, but more numerous during the latter, very dry part of the season. Very numerous in the Portland area.

C O T T O N I N S E C T S

BOLL WEEVIL (Anthonomus grandis Boh.)

South Carolina. F. F. Bondy, et al. (August 17): Numbers are gradually increasing in Florence County. A total of 54 weevils were caught on 4 flight-screens during the week, making a total of 75 caught this month. A total of 806 weevils was caught on the same traps during August 1939, and 707 in August 1938. However, only an occasional weevil can be found in the few cotton blooms in the fields.

Georgia. R. T. Harwell (August 16): Infestation is still steadily climbing. Squares not so plentiful as last week, and light boll damage beginning to occur. Highest infestation for the week is 33.33 percent.

P. M. Gilmer, et al. (August 3): Infestations have been slowly rising in Tift County during the week, increases amounting to from 1 to 8 percent. Heaviest infestations in upland cotton. In treated fields, where infestation has been kept low, the rise averages about 3 to 4 percent, and in untreated fields from 5 to 8 percent. In the southern sections of the Tift-Cook-Berrien County area the increase has been much higher. Midsummer migration has started and apparently is well under way in the southern tier of counties. Movement into treated fields around Tifton has been rather small and is increasing, the increase being gradual rather than sudden, as is usually the case.

L. W. Morgan (August 16): Rather heavy migrations into the cottonfields in Lowndes and Echols Counties this week. Highest infestation of the week is 24.5 percent, as compared with 11.75 percent last week.

Florida. C. S. Rude, et al. (August 17): Infestation has doubled during the last week in Lake, Union, Alachua, Gilchrist, and Marion Counties, being 24.4 percent, as compared with 12 percent last week. Average infestation for week ended August 19, 1939, was 68 percent, and for the week ended August 20, 1938, it was 72 percent.

Alabama. J. M. Robinson (August 17): Abundant at Auburn and Beauregard.

Mississippi. C. Lyle (August 26): Infestation very light in most Delta counties during August and practically nonexistent in the extreme northern part of the State. Abundant in spots in central Mississippi but not generally. Generally abundant in the Meridian area, whereas a light infestation was generally observed in the extreme southern part of the State.

E. W. Dunnam, et al. (August 10): In Washington County 1,000 squares examined on 4 plantations showed an infestation ranging from 3.5 to 31.0 percent. In Sharkey County 2,000 squares examined on 1 plantation showed an infestation of 5 percent. Adults are extremely scarce. In many fields in which punctured squares have been found no grubs could be found in fallen squares. (August 24): Weevils are concentrating in the terminals now. It appears that there will be a very small population to go into hibernation.

R. L. McGarr, et al. (August 17): Infestation continued low in most of the cottonfields examined this week in Oktibbeha and Lowndes Counties. In a few fields the infestation had increased enough to cause considerable damage. A total of 7,000 squares examined in the check plots of the experimental cuts and in 7 untreated fields showed an average infestation of 14.9 percent, as compared with 13.3 percent the previous week. Infestation in 1939 at this time was 65 percent.

Louisiana. R. C. Gaines, et al. (August 17): In Madison Parish 14,300 squares examined in plots untreated all season showed an average of 58.4 percent punctured squares, as compared with 36.4 percent last week. Weevils taken on field screens for week ended August 16 totaled 44, as compared to 55 at this time in 1939, and 157 in 1938.

I. C. Bechel (August 28): Extensively damaging cotton in Caddo and Bossier Parishes.

Oklahoma. C. F. Stiles (August 23): Infestation is building up quite rapidly throughout southeastern Oklahoma. Infestations ran as high as 40 percent on August 13 in fields in Choctaw County and is even higher now, owing to weather conditions. Cotton on second bottoms near bluffs and timber much more heavily infested than that in the first bottoms, which are subject to overflow.

Texas. F. L. Thomas (August 6): Considerable damage still done, despite warm weather, and weevils are rapidly spreading to uninfested fields. (August 20: Numbers have increased in most fields and practically all young fruit is now being damaged. There is a natural movement from cotton which is opening to fields which show growth.

K. P. Ewing, et al. (August 10): In McLennan County 2,000 squares examined in 4 experimental fields showed an average of 39.7-percent punctures. The high increase over last week, averaging 9.96 percent, was no doubt owing to concentration of weevils in the few squares left on the plants. At Mexia 1,800 squares inspected in 3 fields showed an average of 67.6-percent punctures, as compared with 58.4 percent for last week. More squares left on cotton at Mexia than around Waco. (August 24): Nearly all the cotton is mature and very few squares are left on the plants. Weevils are taking these and doing considerable damage to the small bolls in most sections in the McLennan County area, particularly in the river bottoms.

C. R. Parencia, et al. (August 3): Observations in the Guadalupe River bottoms near Victoria on August 1 showed that weevils have destroyed most of the squares which set after July 1. Infestation in two fields was above 80-percent punctured squares. Sea-island cotton in southern Jackson and western Wharton Counties examined on July 29. Cotton heavily fruited and squares plentiful. Four fields examined showed an average of 32-percent punctured squares. Infestation appears recent, as only a few flared squares were observed. (August 17): Most of the scattering squares present in Calhoun County have been punctured, but little damage has been done to the bolls.

A WEEVIL (Compsus auricephalus Say)

Louisiana. I. J. Becnel (August 28): Very common in several cotton fields in Caddo and Bossier Parishes throughout the summer. Infestation counts in one field showed an average of almost two adults per plant. Damage to foliage was readily evident where the infestation was several beetles per plant. A few adults were also collected on cotton in Natchitoches Parish and on Irish potato foliage in Bossier Parish.

COTTON LEAF WORM (Alabama argillacea Hbn.)

Georgia. L. W. Morgan (August 2): Larvae found in cotton in Lowndes County on July 31.

Florida. C. S. Rude, et al. (August 10): Heavy populations in fields in southern Marion and part of Gilchrist Counties. (August 17): Serious in Marion County, where frequent rains have made control almost impossible. Damage light in other sections.

Mississippi. G. L. Bond and assistants (August 26): First leaf worm was found on cotton in George County on August 1. Other specimens found in the same field on August 12.

Louisiana. C. Lyle (August 19): A half-grown larva was reported at Tallulah on August 15.

I. J. Becnel (August 28): Three larvae were collected at Hosston, Caddo Parish, on August 17. First larvae in the vicinity of Baton Rouge was collected on August 20.

Texas. F. L. Thomas (August 6): First leaf worms in central Texas were found nearly half grown on August 6 in the bottom lands of Burleson County. (August 20): Many fields completely defoliated in the lower Rio Grande Valley, and fields ragged in Calhoun County.

C. R. Parencia, et al. (August 3): One small larva found near Port Lavaca, Calhoun County, on July 31. A number of adults and small larvae observed on August 2 in the same field.

K. P. Ewing, et al. (August 7): The first larva, about half grown, found in McLennan County was collected on August 6 in the vicinity of Riesel. It is interesting to note that the first larva was found in the same field last year. (August 24): Several found in different localities in the McLennan County area during the week. No injurious infestations noted.

A. J. Chapman (August 17): The first specimen was found in Presidio County on August 9. Spotted infestations have occurred in Presidio County in sufficient proportions to necessitate control measures. Infestation not general.

Arizona. W. A. Stevenson (August 10): The first leaf worms were found in an 80-acre field of short-staple cotton near Marana, Pima County, on August 5, whereas in 1939 the first larvae were found in the Santa Cruz Valley on August 28. Subsequent examinations showed limited numbers of larvae present in a field of long-staple cotton. All specimens were very small, probably in the first or second instar..

BOLLWORM (Heliothis armigera Hbn.)

North Carolina and South Carolina. F. F. Bondy, et al. (August 3): Injury to squares and young bolls increased during the week in Florence County, S. C., some fields suffering more from bollworm than from boll weevil. This condition also prevailed in eastern North Carolina, according to observations.

Georgia. L. W. Morgan (August 16): A few present in all fields in Lowndes and Echols Counties, but in such small numbers that damage is not serious.

Florida. C. S. Rude, et al. (August 10): Serious in some fields and present and doing some damage in most fields in the cotton-growing area.

Mississippi. R. L. McGarr, et al. (August 3): Observed to be doing damage in a few fields of cotton this week in Oktibbeha and Lowndes Counties.

Louisiana. I. J. Becnel (August 28): Damaging cotton extensively in Caddo and Bossier Parishes. Many of the larger bolls are being attacked by the larvae.

Oklahoma. C. F. Stiles (August 23): About 5-percent damage done to cotton in the Red River counties of southeastern Oklahoma.

Texas. F. L. Thomas (August 6): Scattering damage caused in many fields in central Texas. Larvae of all sizes present.

A. J. Chapman (August 17): Much of the late cotton in Presidio County severely damaged.

Arizona. W. A. Stevenson (August 3): Infestation in the Marana section of Pima County, while not serious, showed a definite increase during the last week. Larvae found to be feeding primarily on squares.

PINK BOLLWORM (Pectinophora gossypiella Saund.)

Texas. A. J. Chapman (August 17): Infestation counts in 29 fields in Presidio County in 1939 showed an average infestation of 1.45 percent during the first 15 days in August, whereas the infestation counts in 28 fields during the same period this year showed an average of 1.79 percent. Average infestation for 22 identical fields for the 2 years was 1.68 percent in 1939, compared to 2.23 percent this year. Crop in many of the fields was much later than last year, a fact that must be taken into consideration in comparing the infestation from year to year.

SALT-MARSH CATERPILLAR (Estigmene acrea Drury)

Mississippi. E. W. Dunnam, et al. (August 17): One infestation noted at the edge of a cottonfield in Washington County.

Texas. C. R. Parencia, et al. (August 17): Several fields attacked in Calhoun County, but in most instances the cotton was about mature. Apparently no cotton was not damaged.

APHIDS (Aphidae)

South Carolina. F. F. Bondy, et al. (August 3): Aphids decreased in all fields, including the treated fields, during the week in Florence County, probably owing to the dry, wilted condition of the plants as well as to a build-up in parasites and predators. Shedding of leaves and young fruit very heavy in most fields.

Georgia. E. J. O'Neal, et al. (August 17): Infestation in Tift County has dropped off since last week; present but doing no damage.

Mississippi. C. Lyle and assistants (August 26): Medium-to-heavy infestation of the cotton aphid (Aphis gossypii Glov.) found in treated fields in the Meridian area; also heavy infestations in treated fields at State College.

E. W. Dunnam, et al. (August 24): Aphids are increasing very slowly on untreated cotton in Washington County. On treated cotton the small, yellow forms are increasing very rapidly. The blue-green, large forms have not appeared, and winged forms are increasing slightly on treated cotton. Population at Stoneville is strikingly different from that at State College, where there is a heavy infestation of large aphids. This form does not appear here until October, after second growth begins.

Louisiana. R. C. Gaines, et al. (August 17): Aphids have increased in many cottonfields in Madison Parish, especially where treated. Heavy infestation found in a few untreated plots.

Texas. K. P. Ewing, et al. (August 17): Infestation records made in the three aphid-boll weevil experiments in McLennan County during the week showed an average in the check plots of 0.05 aphid per square inch and in the treated plots of 3.31 aphids per square inch. On the whole there are probably fewer than normal in cottonfields in this section.

MIRIDS (Leucopoecila spp.)

New Mexico. J. R. Eyer (August 14): Both adults and nymphs of Leucopoecila sp. are injuring young squares, 10 to 15 per 100 sweeps of the net being collected.

Texas. R. K. Fletcher (August 13): L. albofasciata Reut. was present on cotton in Pecos County on July 31.

COTTON STAINER (Dysdercus suturellus H. S.)

Florida. C. S. Rude (August 10): This insect has begun to show up in Lake County and was taken in two fields in Marion County.

WHITEFLIES (Aleurodidae)

Mississippi. E. W. Dunnam, et al. (August 24): Present in most cottonfields in Washington County.

Texas. C. R. Parencia, et al. (August 3): A few whiteflies observed in the boll weevil-aphid experimental field in Calhoun County since the experiment was started early in July.

RED SPIDERS (Tetranychus spp.)

North Carolina. F. F. Bondy, et al. (August 3): Severe injury observed in eastern North Carolina, one field being seen where practically every leaf and most of the fruit had been shed.

South Carolina. F. Sherman and W. C. Nettles (August 26): Considerable local damage caused on cotton.

Mississippi. E. W. Dunnam, et al. (August 24): Unconfirmed reports received August 23 that red spiders were killing cotton in small spots in Washington County.

Arkansas. D. Isely (August 26): Very injurious to cotton in the counties in northeastern Arkansas. Probably more damage than in any year since 1925.

FOREST AND SHADE - TREE INSECTS

FALL WEBWORMS (Hyphantria spp.)

New England. E. P. Felt (August 26): H. textor Harr. moderately abundant in southern New England and southeastern New York, as indicated by unsightly nests here and there on various trees.

Maine. F. H. Lathrop (August 23): H. cunea Drury nests more numerous than usual especially in eastern part of the State, near Bangor and Orono and eastward toward Ellsworth.

Massachusetts. A. I. Bourne (August 23): Tents becoming very conspicuous. Considerably less numerous than normal, but nearly as abundant as last year. Reported as more widespread in Berkshire County and in parts of Plymouth and Bristol Counties, in southeastern Massachusetts.

South Carolina. F. Sherman and W. C. Nettles (August 26): Webs noticeable on persimmon, pecan, and hickory.

Mississippi. C. Lyle (August 26): Adults of H. cunea received from Covington County, in southern part of the State, on August 5. Reports indicate that infestation decreased in Poplarville area, is generally heavy in the Meridian area, and not so numerous as expected in the southeastern counties. Second brood was hatching in the State College area about August 15 but egg masses were still being deposited on August 20. Farther south and in the Delta the second-brood larvae are from one-third to one-half grown.

Ohio. E. W. Mendenhall (August 6): Nests are numerous on wild cherry trees in Morrow County, where the damage is light.

Minnesota. M. W. Wing (August 15): H. cunea present on willow and apple at Cokato.

SADDLED PROMINENT (Heterocampa guttivitta Walk.)

New Hampshire. J. V. Schaffner, Jr. (August 13): Reported as abundant in the White Mountain region of the State, causing some defoliation in the vicinity of Bartlett.

Vermont. H. L. Bailey (August): Appeared in outbreak on Herrick Mountain, at Ira, Rutland County, western Vermont. Maple and beech defoliated or badly eaten over a 1- to 2-square mile area. Pupation had taken place, except for a few larvae, by August 23. Many larvae of Calosoma sp. working among pupae in leaf mold.

New York. P. B. Dowden (August 16): Noticeable thinning of foliage of beech and maple in woodland on Slide Mountain, Wittenberg Mountain, and Hunter Mountain in the Catskills.

WHITE-MARKED TUSSOCK MOTH (Hemerocampa leucostigma A. & S.)

Pennsylvania. E. A. Richmond (August 28): Larvae found causing damage in Luzerne and Monroe Counties.

Ohio. E. W. Mendenhall (August 20): Nests or cocoons are numerous on elm trees in central Ohio.

HICKORY TUSSOCK MOTH (Halisidota caryae Harr.)

Connecticut. G. H. Plumb (August 24): Apparently a general feeder this season, as larvae were noted on several different species of hardwoods, including elm, hickory, ash, beech, walnut, and maple.

Pennsylvania. E. A. Richmond (August 28): Larva found causing damage in Luzerne and Monroe Counties.

CECROPIA MOTH (Samia cecropia L.)

North Dakota. J. A. Munro (August 24): Outbreak in Bismarck is most severe. Boxelder trees suffer most extensive defoliation, some trees being literally stripped of their leaves. Heavy infestation is limited to the Bismarck vicinity.

SCALLOP-SHELL MOTH (Calocalpe undulata L.)

Massachusetts. A. I. Bourne (August 23): Webs common on wild cherries. In general, more common than usual.

FOREST TENT CATERPILLAR (Malacosoma disstria Hbn.)

New York. J. V. Scheffner, Jr. (August 15): Reported that several thousand acres of forest along Dry Brook Ridge, south of Margaretville, and also near Phoenicia in the Catskills show partial to complete defoliation.

BAGWORM (Thyridopteryx ephemeraeformis Haw.)

Pennsylvania. T. L. Guyton (August 20): Numerous in eastern and central counties of the State.

J. F. Slesman (August 21): Abnormally heavy in the Philadelphia area, feeding on locust, maple, spruce, arborvitae, juniper, and other host plants.

District of Columbia. L. G. Baumhofer (August 24): Numerous inquiries during July and August indicate that this pest is prevalent on evergreens in Washington and vicinity.

Virginia. A. M. Woodside (August 14): Defoliated a few small, isolated locust trees in Staunton.

L. A. Hetrick (August 20): Infesting juniper and arborvitae at West Point and Aylett. Defoliation has caused death of some ornamentals.

South Carolina. F. Sherman and W. C. Nettles (August 26): Evergreen bagworm apparently more abundant than normal.

Alabama. J. M. Robinson (August 17): Reported as active on cedars at Troy on July 22; at Shorter on August 15; at Auburn on August 1; and at Cullomburg on July 18.

Ohio. T. H. Parks (August 24): Much defoliation of arborvitae, willow, and other trees in the southern half of the State.

Mississippi. C. Lyle (August 26): Specimens received from Pontotoc, Simpson, Tallahatchie, and Tate Counties. Also reported present in Prentiss County abundant in the Meridian area, all over the northeastern counties, in Holmes and Washington Counties, and to be causing severe damage in one locality in Hinds County.

Missouri. L. Haseman (August 20): Many complaints received during August from many parts of the State, where bagworms have been injuring evergreen, boxelder and other trees.

Oklahoma. F. A. Fenton (August 22): Reported at Elmore City.

Texas. R. K. Fletcher (August 13): Injury severe on red cedar and arborvitae in Milam, Colorado, El Paso, and Ellis Counties.

ALDER

EUROPEAN ALDER LEAF MINER (Fenusa dohrnii Tischbein).

Pennsylvania. E. P. Felt (August 26): Somewhat abundant at Wynnewood.

ASH

AN APHID (Prociphilus fraxinifolii Riley)

Minnesota. M. W. Wing (August 15): Present on ash at Saint Paul.

Utah. G. F. Knowlton (August 10): Heavily infesting terminal leaves of ash at Hyde Park and Smithfield. Attended by large numbers of black ants.

AN ASH FLOWER GALL (Eriophyes fraxiniflora Felt)

Minnesota. M. W. Wing (August 15): Present on white ash at Stony Point.

BIRCH

BRONZED BIRCH BORER (Agilus anxius Gory)

General. E. P. Felt (August 26): Work somewhat prevalent upon white, especially ornamental, birch here and there in the Northeastern States.

A CASE BEARER (Coleophora salmani Heinr.)

Mine. H. B. Peirson (August 19): Heavily infesting and killing birch trees on island and coastal towns from Isle au Haut to Machias.

AN APHID (Calaphis betulaecolens Fitch)

N. Jersey. M. D. Leonard (August 22): A number of birch trees examined at Ridgewood were all found to have developed a considerable number of this pest, and honeydew was abundant on the leaves.

BIRCH LEAF MINER (Fenusa pumila Klug)

N. York. M. D. Leonard (August 25): Moderate infestation on most trees at Flushing.

N. Jersey. M. D. Leonard (August 22): Fairly common on a number of trees at Ridgewood.

A SAWFLY (Phyllotoma nemorata Fall.)

Mine. H. B. Peirson (August 19): Birch leaf-mining sawfly generally light in eastern Maine. On July 18 new mines were beginning to show at Boothbay.

ELM

ELM LEAF BEETLE (Galerucella xanthomelaena Schr.)

Mine. H. B. Peirson (August 19): Causing severe elm defoliation locally in Gardiner on August 7. Full-grown larvae descending trees, some pupae seen, also an occasional adult.

Vermont. H. L. Bailey (August): Abundant for first time in Burlington, Chittenden County, northwestern Vermont. Also caused noticeable damage to foliage in Vergennes, Brandon, and other towns south of Burlington, on the western side of the State. Feeding was later than usual, some larvae still being found at Vergennes on August 23.

Massachusetts. A. I. Bourne (August 23): First adults of the second brood began to appear early in the month. Much more abundant than usual over the State as a whole, and damage is particularly conspicuous in eastern and southeastern parts of the State. Egg laying on new growth of leaves developing on trees practically defoliated by the first brood of larvae observed in Plymouth County.

Connecticut. M. P. Zappe and P. Wallace (August 23): More abundant throughout the southern half of the State than for several years. Local defoliation in towns in the northern half. Adults depositing eggs and a few newly hatched second-generation larvae observed on August 16.

New York. P. B. Dowden (August 16): Outbreaks on elm trees observed in the following localities of the State: Highland, Esopus, Millbrook, Kingston, Poughkeepsie, Saugerties, and Harrison.

Pennsylvania. J. P. Sleesman (August 5): Widespread throughout the Philadelphia area, the elms having been completely defoliated in many localities.

T. L. Guyton (August 9): Numerous on elm in one garden in Harrisburg.

New Jersey. C. W. Collins (August 9): Noticeable injury had occurred in parts of Somerset, Morris, and Essex Counties in areas where the species had been numerous during the last few years. More abundant in Morristown than in any year since 1934 at least.

Maryland. E. N. Cory (August 6): Attacking elms at Leonardtown.

Virginia. L. A. Hetrick (August 24): Eggs, larvae, and adults abundant on young elms at West Point on August 8. Trees had already suffered severe injury.

LARGER ELM LEAF BEETLE (Monocesta coryli Say)

Florida. A. H. Madden (July 31): Larvae collected on elm at Quincy on July 18. Leaves completely skeletonized on two trees. No other stage of insect present. (Det. by W. H. Anderson.)

Alabama. J. M. Robinson (August 17): Reported on elm at Montgomery on August 13 and at Fitzpatrick on August 12, and on elm and willow at Kelleyton on July 31.

F. E. Guyton (July 20): Found at Auburn.

A NYMPHALID (Polygonia interrogationis F.)

Connecticut. J. V. Schaffner Jr. (August 21): Larvae unusually common, particularly on the terminal leaves of elm sprout growth and small trees along roadsides in the rural districts of New Haven County.

MOURNING-CLOAK BUTTERFLY (Hamadryas antiopa L.)

Missouri. A. C. Burrill (August 1): Nearly full-grown caterpillars were eating leaves on elm sprouts and seedlings on June 7 near St. Louis and on June 2 at Jefferson City.

EUROPEAN ELM SCALE (Gossyparia spuria Mod.)

Maine. H. B. Peirson (August 19): Heavy on cork elm in Hancock and on American elm in Augusta in June and July.

Nebraska. H. D. Tate (August 16): Found to be heavily infesting samples of branches from an elm received from Kimball County on August 13.

HICKORY

HICKORY PHYLLOXERA (Phylloxera caryaecaulis Fitch)

Connecticut. E. P. Felt (August 26): Abundant on hickory at Westport.

LARCH

LARCH SAWFLY (Lygaeonematus erichsonii Htg.)

Maine. H. B. Peirson (August 19): Outbreaks very heavy and causing severe defoliation on August 3 along far eastern coastal towns from Jonesport to Lubec.

Vermont. H. L. Bailey (August): Group of large larch trees near Brattleboro, Windham County, southeastern Vermont, found stripped. Feeding had been completed by July 31. Many cocoons found in litter.

Connecticut. J. V. Schaffner, Jr. (August 24): Reported that a $\frac{1}{4}$ - to $\frac{1}{2}$ -acre plantation of larch in Simsbury was about 75 percent defoliated. Trees affected were about 30 feet in height. No free larvae were found on July 29 but cocoons were exceptionally abundant in the litter. All cocoons cut into contained larvae, rather than pupae or adults.

New Jersey. C. L. Griswold (August 9): Earlier in the season larch trees in a scattered plantation in Mendham Township had been severely attacked. A large cocoon population noted on August 2 under the duff beneath the trees.

LARCH CASEBEARER (Coleophora laricella Hbn.)

New York. J. V. Schaffner, Jr. (August 12): Severe defoliation on a few very large trees observed in Pawling.

LINDEN

AN APHID (Myzocallis tiliae L.)

New York. M. D. Leonard (August 24): Several linden trees under observation at Flushing do not show any infestation.

LINDEN WART GALL (Cecidomyia verrucicola O. S.)

Minnesota. M. W. Wing (August 15): Present on basswood at Winona.

LOCUST

LOCUST LEAF MINER (Chalepus dorsalis Thunb.)

Pennsylvania. T. L. Guyton (August 22): Causing browning of the leaves of black locust in eastern and central parts of the State.

Maryland. E. N. Cory (July 20): Attacking locust trees at Prince Frederick, Calvert County.

Virginia. F. W. Poos (August 20): Breeding in various lots of soybeans at Arlington Experiment Farm several times more abundantly than during 1939. The reason for this increase is not apparent. No black locust trees are located within several hundred yards of these soybeans.

North Carolina. D. L. Wray (August 1): Observed affecting locust trees in forests as much as last year in Mountain counties of Henderson, Buncombe, Madison, Mitchell, and Yancey.

Tennessee, North Carolina, and South Carolina. G. M. Bentley (August 23): Very bad on locust trees on August 14 in eastern Tennessee. Recently found equally as serious in North and South Carolina.

SILVER-SPOTTED SKIPPER (Proteides clarus Cram.)

Connecticut. G. H. Plumb (August 19): Some of the smaller locust trees attacked by Epargyreus tityrus F. at Rainbow have been almost completely defoliated.

LOCUST BORER (Cyllene robiniae Forst.)

Minnesota. M. W. Wing (August 15): On locust tree at Sandstone.

A CERAMBYCID (Tylonotus bimaculatus Hald.)

Minnesota. M. W. Wing (August 15): Present on black locust at Ivanhoe.

MAPLE

GREEN-STRIPED MAPLE WORM (Anisota rubicunda F.)

Maine. H. B. Peirson (August 19): Generally heavy in eastern and southern Maine, especially in Washington and Hancock Counties, where severe defoliation of maple has occurred.

Virginia. A. M. Woodside (August 14): Few trees partly defoliated near Fishersville, Augusta County, and at several points along the highways.

MAPLE LEAF CUTTER (Paraclemensia acerifoliella Fitch)

Vermont. H. L. Bailey (August): Abundant on sugar maple foliage in western Vermont. Foliage of many trees browned by attacks.

AN APHID (Drepanaphis acerifoliae Thos.)

New York. M. D. Leonard (August 15): Very light infestation found on leaves of several maple trees examined at Flushing. The same trees were infested in 1939.

COTTONY MAPLE SCALE (Pulvinaria vitis L.)

Idaho. J. C. Evenden (August 20): Normally abundant on maple throughout Coeur d'Alene. No great or permanent damage has resulted.

MAPLE BLADDER GALL (Phyllocoptes quadripes Shim.)

Minnesota. M. W. Wing (August 15): Present on silver maple leaves at Coleraine, on maple leaves at Hibbing, and on cutleaf silver maple leaves at Two Harbors.

MOUNTAIN ASH

A SAWFLY (Pristiphora geniculata Htg.)

Maine. H. B. Peirson (August 19): Generally common throughout State during August. Severe to complete defoliation of mountain ash is common in the Kennebec and Dead River watersheds, particularly between Caratunk and Jackman. Larvae were beginning to spin cocoons on August 3.

OAK

TWIG PRUNER (Hypermallus villosus F.)

Maine. H. B. Peirson (August 19): Injury to oak is very common, as it was 2 years ago. Apparently light infestations last year from observations and reports made.

Massachusetts. E. P. Felt (August 26): Work in moderate amounts was reported from the vicinity of Boston.

New York. E. P. Felt (August 26): Work in moderate amounts reported from the vicinity of Monroe.

Minnesota. M. W. Wing (August 15): Present on white oak at Wabasha.

A BORER (Agrilus arcuatus Say)

Minnesota. M. W. Wing (August 15): Present on red oak at Faribault.

A LACEBUG (Corythucha arcuata Say)

New Jersey. M. D. Leonard (August 22): Large white oak at Ridgewood, with the foliage a general gray in appearance, observed to have almost every leaf heavily infested. (Det. by H. G. Barber.)

GOLDEN OAK SCALE (Asterolecanium variolosum Ratz.)

New York. E. P. Felt (August 26): Found in some numbers on golden oak at Bedford Hills.

PINE

A SAWFLY (Gilpinia frutetorum F.)

Connecticut. J. V. Schaffner, Jr. (August 1): Infestation in a red pine plantation at Litchfield, which has been under observation since September 1938 increased considerably in 1940. Larvae are solitary in habits and difficult to find unless rather abundant, because their color blends with that of the foliage. On August 1, 500 full-grown larvae were collected in this infestation in less than an hour, by beating the branches.

RED-HEADED PINE SAWFLY (Neodiprion lecontei Fitch)

Virginia. L. A. Hetrick (August 24): First generation sent in from Richmond County on July 26 and reported as feeding on a young loblolly pine. Larvae noted at several points in the tidewater area within the last month. Not abundant enough at present to cause losses of young pines.

A SAWFLY (Neodiprion pinetum Nort.)

Vermont. H. L. Bailey (August): Specimens received from Corinth and East Randolph, Orange County, eastern Vermont, with reports of defoliation.

Correction:--The note on page 350 of Insect Pest Survey Bulletin dated August 1, 1940, on the pine sawfly, Acantholyda erythrocephala L., should read "Pennsylvania. C. L. Griswold (July 19): Larvae found feeding * * *

WHITE PINE WEEVIL (Pissodes strobi Peck)

New England. E. P. Felt (August 26): Moderately abundant in small white pines in southern New England and southeastern New York.

Minnesota. M. W. Wing (August 15): Present on white pine at Nisswa, Stoney Point, Bock, and Saint Paul.

PALES WEEVIL (Hylobius pales Hbst.)

New Hampshire and Massachusetts. J. V. Schaffner, Jr. (August 24): Reported that a recent study of the injury this season to natural white pine seedlings in hurricane-felled stands in Massachusetts and New Hampshire indicates that comparatively little damage was caused this season. In a stand at Coldbrook, Mass., however, about 50 percent of the seedlings died this season as a result of injury.

A SCOLYTID (Pityophthorus ramiperda Swaine)

Maine. H. B. Peirson (August 19): Pine twig beetle somewhat abundant in central Maine, tunnelling in tips of white pine twigs and causing them to die and brown.

SPRUCE BUDWORM (Cacoecia funiferana Clem.)

Minnesota. M. W. Wing (August 15): Moderately abundant on jack pine in Beltrami County.

A MOTH (Dioryctria zimmermani Grote)

Maine. H. B. Peirson (August 19): Zimmerman's pine moth common on young white pine trees in central Maine, especially about wounds at the base of branches on the main trunk. Injury caused to small plantation trees near the base of apparently unwounded trees during recent years. Larvae were nearly full grown the last of July.

PINE TUBE MOTH (Argyrotaenia pinitubana Kearf.)

Monting. J. C. Evenden (July 10): Always present within lodgepole pine stands in West Yellowstone. Severe outbreak this year, which can be considered as being in epidemic proportions, a few miles to the southeast of Madison Junction. All trees are infested.

A PINE APHID (Cinara taedae Tissot)

Virginia. L. A. Hetrick (August 24): Noted feeding in great numbers on July 12 on old needles of loblolly pines in Middlesex County. Feeding causes a premature yellowing and shedding of needles. Infestation has since been noted at other points in the tidewater area. Population has rapidly decreased since August 1. (Det. by P. W. Mason.)

SPRUCE GALL APHID (Pineus pinifoliae Fitch)

New York. T. Parr (August 6): Aphids collected at St. Huberts on white pine needles on July 30. (Det. by P. W. Mason.)

North Carolina. D. L. Wray (July 31): Usual damage observed on spruce trees at Hot Springs, Madison County; Poplar, Mitchell County; and Highlands, Macon County.

A THRIPS (Gnophothrips piniphilus Crawford.)

Rhode Island. C. C. Jennings (August 20): Found on Austrian pine in Kent County. (Det. by J. C. Crawford.)

POPLAR

A CERAMBYCID (Plectrodera scalator F.)

Missouri. J. Castelli (August 2): Beetle found in Pacific submitted on July 31. (Det. by W. S. Fisher.)

APHIDS (Thecabius spp.)

Utah. G. F. Knowlton (August 1): T. populi-monilis Riley have seriously injured many leaves of the narrow-leaf cottonwood trees at Warship. (August 10): T. populi-conduplicifolius Cowen has folded large numbers of leaves of several poplars at Trenton.

POPLAR BORER (Saperda calcarata Say)

Minnesota. M. W. Wing (August 15): Present on poplar in the northern part of the State.

SPRUCE

EUROPEAN SPRUCE SAWFLY (Gilpinia polytomum Htg.)

Maine. H. B. Peirson (August 19): Outbreak remains generally severe, with new areas of heavy spruce infestation being reported in Rangleys and Dead River regions. New cocoons were being spun on the central coast on July 20 and in the Jackman region on August 3.

SPRUCE SAWFLY (Neodiprion abietis Harr.)

Maine. H. B. Peirson (August 19): Larvae, two-thirds grown, common on spruce on Squirrel Island off Boothbay on July 13.

YELLOW-HEADED SPRUCE SAWFLY (Pikonema alaskensis Rohw.)

Maine. H. B. Peirson (August 19): Still abundant on young open-growth spruce generally throughout the State. Some severe outbreaks in central Maine have dropped, owing to attack by native parasites. Life cycle was about 10 days to 2 weeks late this year, larvae being present in Bangor as late as August 17.

EASTERN SPRUCE GALL APHID (Adelges abietis L.)

Michigan. R. Hutson (August 23): Adults present on Norway and blue spruce at Lansing, Grand Rapids, Holland, and Detroit about the middle of August.

Minnesota. M. W. Wing (August 15): Present on spruce at Duluth.

SITKA SPRUCE GALL APHID (Adelges cooleyi Gill.)

Maine. H. B. Peirson (August 19): Migrants abundant on Douglas fir; egg masses observed in Portland.

Michigan. R. Hutson (August 23): Present at Bloomfield Hills. Seldom found on Michigan plantings.

SPRUCE NEEDLE MINER (Taniva albolineana Kearf.)

Maine. H. B. Peirson (August 19): Severely injured a few spruce trees in Richmond on May 23. Unusually heavy webbing is taking place.

WALNUT

WALNUT CATERPILLAR (Datana integerrima G. & R.)

Connecticut. G. H. Plumb (August 20): One large walnut tree at Hamden completely defoliated.

Michigan. R. Hutson (August 23): Reported from Mason, Ionia, and Grand Rapids. Adults made appearance in cages early in June. Untreated trees practically defoliated, as the season has been favorable to the pest.

Minnesota. M. W. Wing (August 15): Present on butternut at Saint Paul.

YELLOW-NECKED CATERPILLAR (Datana ministra Drury)

Tennessee. G. M. Bentley (August 23): Causing injury to foliage of black walnut in Franklin County on July 27.

WILLOW

IMPORTED WILLOW LEAF BEETLE (Plagiodera versicolora Laich.)

Massachusetts. J. V. Schaffner, Jr. (August 17): Heavy infestation observed on willow in Greenfield.

Connecticut. M. P. Zappe (August 23): Many willows defoliated in Fairfield and Litchfield Counties.

J. V. Schaffner, Jr. (August 17): Heavy infestations on willow observed in Cheshire and Hamden.

New York. R. E. Horsey (August): Grubs and adults common to abundant on several species of willow leaves on July 31 at Rochester. Reported as common on willows near Canadaigua on August 2.

J. V. Schaffner, Jr. (August 17): Heavy infestations observed on willow.

ROSE LEAF BEETLE (Nodonota puncticollis Say)

Virginia. A. M. Woodside (August 14): A small willow near Fisherville was partly devoliated during the early part of the month.

AN APHID (Chaitophorus viminalis Monell)

New Jersey. M. D. Leonard (August 27): Heavy infestation on a large willow tree at Ridgewood continues about the same as a month ago.

PINE CONE GALL (Rhabdophaga strobiloides Walsh)

Minnesota. M. W. Wing (August 15): Found on willow at Ortonville.

INSECTS AFFECTING GREENHOUSE
AND ORNAMENTAL PLANTS

CHINCH BUG (Blissus hirtus Montd.)

Maine. H. B. Peirson (August 19): Severely browning lawn in Augusta. Adults just appearing.

Connecticut. J. P. Johnson (August 23): Lawns severely damaged in many sections of Hartford, West Hartford, Hamden, New Haven, West Haven, and Westport. First brood delayed 3 weeks or more, owing to weather conditions.

STALK BORER (Papaipema nebris nitela Guen.)

Minnesota. M. W. Wing (August 15): Observed on dahlia at St. Paul.

Nebraska. H. Douglas Tate (July 18): Specimens submitted from Box Butte County with report that they were killing sunflowers.

FLOWER WEBWORM (Homoeosoma electellum Hulst.)

Minnesota. M. Wing (August 15): Attacking zinnias and dahlias and working in heads of flowers at West Concord, Pennock, Renville, Rochester, Benson, Cokato, and in Carver County.

A BEETLE (Lema sexpunctata albina Lac.)

Alabama. F. E. Guyton (August 3): Heavily damaging wandering jew at Auburn.

SUNFLOWER WEEVIL (Rhodoabaenus tredecimpunctatus Ill.)

Georgia. Mrs. A. B. Brown (July 8): Collected on dahlia at Quitman on July 8. Found boring in stem and upper portion of root. (Det. by W. H. Anderson)

AN APHID (Capitophorus gillettei Theob.)

New York. M. D. Leonard (August 24): Two to three dozen large smartweed plant grown in pots built up a heavy infestation within a couple of weeks at the New York World's Fair Grounds.

OYSTERSHELL SCALE (Lepidosaphes ulmi L.)

Maine. H. B. Peirson (August 19): Generally abundant on lilac. Eggs hatched June 26 at Augusta, hatching later than normally.

Pennsylvania. J. P. Slesman (August 21): Very heavy infestations found on boxwood in the Philadelphia area. Also found on lilac and elm.

Washington. E. J. Newcomer (August 14): Very common on apple and pear trees in Kittitas County.

California. F. C. Bishopp (August 12): Collected at Lakeport on August 3.
Killing willow along lake.

EUROPEAN FRUIT LECANIUM (Lecanium corni Bouche)

Calif. G. F. Knowlton (May 18): Heavily infesting rose bushes in gardens at Richfield.

COTTONY-CUSHION SCALE (Icerya purchasi Mask.)

New York. M. D. Leonard (August 9): Few bay trees growing outdoors in large wooden tubs at the New York World's Fair Grounds were infested, one being considerably infested and the other two or three only lightly. Plants reported as coming from a nursery near Philadelphia.

Mississippi. C. Lyle and assistants (August 26): Reported as very numerous on one property in Harrison County and several requests for control reported from the southeastern counties.

A MITE (Eriophyes eucricotes Nal.)

New York. E. P. Felt (August 26): Lycium leaves infested with galls were received from the New York Botanical Garden.

AZALEA

AZALEA SCALE (Eriococcus azaleae Comst.)

Mississippi. C. Lyle and assistants (August 26): Found on azalea on three properties in Harrison County. Light infestations noted in Meridian area.

BAMBOO

A SCALE (Odonaspis penicillata Green)

Mississippi. C. Lyle (August 26): Specimens on bamboo received from Harrison County.

BOXWOOD

BOXWOOD LEAF MINER (Monarthropalpus luxi Laboulb.)

New England. E. P. Felt (August 26): Damage reported from a number of localities in southern New England, southeastern New York, and northern New Jersey.

Pennsylvania. T. L. Guyton (August 19): Numerous in one planting of boxwood at Harrisburg.

North Carolina. D. L. Wray (August 1): Seriously attacking boxwood in Winston-Salem, in Forsyth County, and in Asheville, in Buncombe County.

CAMPHOR

CAMPHOR THRIPS (Liothrips floridensis Watson)

Mississippi. G. L. Bond (August 26): Reported as almost destroying some camphor trees growing in a hedge in Jackson County.

CANNA

LESSER CANNA LEAF ROLLER (Geshna cannalis Quaint.)

Mississippi. C. Lyle (August 26): Specimen sent in from Copiah County, the first specimen seen for several years.

COLUMBINE

COLUMBINE BORER (Papaipema purpurifascia G. & R.)

Minnesota. M. W. Wing (August 15): Found in aquilegia roots at Northfield.

CHRYSANTHEMUM

CHRYSANTHEMUM APHID (Macrosiphoniella sanborni Gill.)

Illinois. C. C. Compton (August 24): Caused an unusual amount of damage to greenhouse grown chrysanthemums throughout State. Particularly troublesome where 'mums are grown under shading cloths.

~~CHRYSANTHEMUM~~ LACEBUG (Corythucha marmorata Uhl.)

Ohio. T. H. Parks (August 24): Severely damaging chrysanthemum in Trumbull.

CRAPEMYRTLE

CRAPEMYRTLE APHID (Myzocallis kahawaluokalani Kirk.)

Mississippi. L. J. Goodgame (August 26): Abundant on trees in Monroe County.

EUONYMUS

EUONYMUS SCALE (Chionaspis euonymi Comst.)

Mississippi. C. Lyle and assistants (August 26): Specimens received from Montgomery County. Severe injury reported from Hinds County and from the north eastern part of the State where several plants were killed.

Texas. R. K. Fletcher (August 13): Causing severe injury in Dallas County on August 4 and in Brazos County on August 10.

HAWTHORN

A LACEBUG (Corythucha cydoniae Fitch)

Michigan. R. Hutson (August 23): Taken on hawthorn at Howell.

Mississippi. G. L. Dond (August 26): *Pyracantha* injured in several places in the southeastern part of State.

IRIS

IRIS BORER (Macronoctua onusta Grote)

Minnesota. M. W. Wing (August 15): Found on iris at St. Paul.

JUNIPER

JUNIPER SCALE (Diaspis carueli Targ.)

Massachusetts. E. P. Felt (August 26): Found in moderate abundance at Pittsfield.

North Carolina. D. L. Wray (July 31): Irish and English junipers damaged in western part of State. Observed doing serious damage at Winston-Salem, Statesville, Mocksville, Shelby, Hendersonville, Asheville, and Canton.

LILAC

LILAC LEAF MINER (Gracilaria syringella F.)

Maine. H. B. Peirson (August 19): Very abundant on lilac in the Jackman region, a full grown larva being found on July 23.

ORCHIDS

A WEEVIL (Diorymerellus laevimargo Champ.)

Indiana. J. J. Davis (July 8): Collected on orchids in private home at Indianapolis on July 12. (Det. by L. L. Buchanan.)

PHLOX

A SCALE INSECT (Asterolecanium sp.)

Massachusetts. A. I. Bourne (August 24): Found in shallow depressions of rather prominent swellings of phlox stems. First report on this type of injury and first record of its occurrence in State.

RHODODENDRON

RHODODENDRON LACEBUG (Stephanitis rhododendri Horv.)

New Jersey. M. D. Leonard (August 22): Infestation observed on many large plants during season. Less injurious than last year.

ROSE

A LEAF ROLLER (Cacoecia sp.)

Illinois. C. C. Compton (August 24): Rose leaf roller causing severe damage greenhouse-grown roses in northern Illinois. Lack of parasites has resulted in an unusually heavy infestation in commercial rose ranges.

ROSE MIDGE (Dasyneura rhodophaga Coq.)

Colorado. L. E. Taylor (July 23): Collected in maggot stage from rosebuds on July 8, and reared to adults. Emerged July 15.

SPIREA

A EUCOSMID (Evora hemidesma Zell.)

Nebraska. H. D. Tate (August 16): Caterpillars found feeding on leaves of spirea in Washington County on August 8.

YEW

A MEALYBUG (Pseudococcus cuspidatae Rau)

Michigan. R. Hutson (August 23): Large infestation on ornamental stand in a Detroit park.

I N S E C T S A T T A C K I N G M A N A N D

D O M E S T I C A N I M A L S

MAN

MOSQUITOES (Culicinae)

New York. L. O. Howard (August 1): Aedes canadensis Theob. and A. excrucians Walk. attacking man were collected at Tannersville on July 27. (Det. by A. Stone.)

Maryland. F. C. Bishopp (August 23): Anopheles punctipennis Say has been rather annoying around residences in Silver Spring during the last week.

Virginia. L. A. Hetrick (August 24): Five adults of Anopheles crucians Wied. collected on August 13 at West Point.

Florida. J. B. Hull (July 31): Some salt-marsh mosquitoes (Aedes taeniorhynchus Wied.) were found on island opposite Ft. Pierce in July, but are scarce in comparison with July of last year.

Mississippi. C. Lyle (August 26): Mosquitoes were very abundant in the north-western counties and extremely abundant in Pearl River County.

Texas. W. G. Bruce (August 26): Not so prevalent around Dallas as during May, June, and July but troublesome in the vicinity of Trinity River.

Washington and Oregon. C. M. Gjullin (July 31): Comparatively small numbers of Aedes vexans Meig. and A. lateralis Meig. have been taken in light traps operated along the Columbia River this year. This is due to the below-normal crest of the river.

CAT FLEA (Ctenocephalides felis Douche)

New York. H. H. Stage (August 13): Reported as very annoying in a residence in Buffalo. (Det. by Helen L. Trembley.)

Michigan. H. H. Stage (August 11): Reported as annoying both in and outside house in Detroit. (Det. by Helen L. Trembley.)

HUMAN FLEA (Pulex irritans L.)

Illinois. H. H. Stage (July 31): Reported as abundant in Moline and vicinity. (Det. by Helen L. Trembley.)

A THIRIPS (Frankliniella tabaci Fitch)

New York. E. A. Back (August 9): Reported as biting workers in a building in New York City. (Det. by J. C. Crawford.)

CHIGGER (Eutrombicula alfreddugesi Oud.)

Pennsylvania. H. H. Stage (August 12): Reported as not so numerous at Altoona as last year.

Ohio. H. H. Stage (July 25): Yard reported to be full of chiggers.

Illinois. H. H. Stage (July 23): Reported as being very prevalent in lawns in part of Park Ridge and as causing a great deal of trouble.

Michigan. R. Hutson (August 23): Infestations reported from Millford and Erie. First control requests received in several years.

BROWN DOG TICK (Rhipicephalus sanguineus Latr.)

- Tennessee. F. C. Bishopp (August 3): What is believed the first record of the appearance in this State appeared in a small lot of ticks from a correspondent at Knoxville. They were associated with Dermacentor variabilis Say and reported as unusually prevalent. (Det. by Helen L. Trembley.)
- Missouri. H. H. Stage (August 6): Great numbers found in room of house near Saint Louis. (Det. by Helen L. Trembley.)
- Nebraska. H. H. Stage (July 17): Several larvae received from Omaha. (Det. by Helen L. Trembley.)
- California. H. H. Stage (July 23): Specimen sent from Los Angeles County. (Det. by Helen L. Trembley.)

AMERICAN DOG TICK (Dermacentor variabilis Say)

- Massachusetts. F. C. Bishopp (August 13): Reported as attacking humans on August 11 and August 12 at South Truro, on Cape Cod.
- Tennessee. F. C. Bishopp (August 3): Unusually prevalent at Knoxville. (Det. by Helen L. Trembley.)
- Nebraska. H. D. Tate (August 16): Sample of ticks taken from dog in Douglas County on July 16.

BLACK WIDOW SPIDER (Latrodectus mactans F.)

- Texas. R. K. Fletcher (August 13): Reported as abundant in houses in Bexar, Harris, and Brazos Counties during the month.
- California. D. F. Barnes (July): About 200 spiders were killed, while men were sorting 10 tons of first-crop figs at Fresno.

CATTLE

SCREWORM (Cochliomyia americana C. & P.)

- Texas. D. C. Parman (August 1): General infestation for mid-July was about four times that of 1939. Survey and status-trap catches for Kerrville and Pipe Creek were 781 and 1,219 for 1939 and 63 and 8, respectively, for 1938.

E. C. Cushing (August 6): Surveys show that local showers along southern escarpment of the Edwards Plateau, especially at the eastern end, have allowed this pest to survive the hot weather of late July and early August in large numbers. On August 1 the population in this area was about seven times that for the same date last year.

HORN FLY (Haematobia irritans L.)

Missouri. L. Haseman (August 20): Throughout central Missouri horn flies have been less abundant than usual during August.

Texas and Oklahoma. W. G. Bruce (August 26): Not abundant during the month in the vicinities of Dallas and Cresson, Tex., and Waurika, Okla. Infestations on dairy cattle in the Dallas area approximate from 200 to 300 per head. Infestations on beef cattle at Cresson average about 1,000 per head and infestations at Waurika were estimated at 800 per head.

E. C. Cushing (August 26): On 16 cattle examined at the ranch experiment station at Menard 942 horn flies were estimated, or an average of approximately 59 per animal. Horn flies have developed quite rapidly since heavy rains during the third week in August.

STABLEFLY (Stomoxys calcitrans L.)

Missouri. L. Haseman (August 20): In central Missouri stable flies have been less abundant than usual throughout August and are reported to be abundant in localized parts of the State.

Texas and Oklahoma. W. G. Bruce (August 26): Greatly reduced in numbers since July at Dallas and Cresson, Tex., and somewhat reduced at Waurika, Okla.

LONE STAR TICK (Amblyomma americanum L.)

Arkansas. H. H. Stage (July 26): Several larvae taken from a dog at Pine Bluff. (Det. by F. C. Bishopp.)

EAR TICK (Ornithodoros megnini Duges)

Texas. H. E. Parish (August 26): Of 272 animals examined on 5 ranches in Menard and Kimble Counties on August 13, 106 were found to be infested. Of these animals 234 were sheep, of which 90 were found to be infested, and 38 were cattle of which 16 were infested. The infestation ranged from light to heavy.

DEER FLIES (Chrysops spp.)

Delaware. L. A. Stearns (July 22): Several species abundant on man and animals and biting severely in area along Delaware Bay shore, in New Castle County.

HORSE

HORSEFLIES (Tabanus spp.)

Minnesota. M. W. Wing (August 15): T. atratus F. was present on cows at Ortonville and at Farmington. T. stygius Say present in Minneapolis.

Missouri. L. Haseman (August 20): T. sulcifrons Macq. continued to be unusually abundant and annoying to livestock throughout the State during August, this species being the most in evidence.

A. C. Burrill (July 28): Second time T. atratus has been noted annoying cattle in pasture near Jefferson City.

CHINCHILLA

▲ PSOCID (Liposcelis sp.)

Utah. G. F. Knowlton (August 7): Present in nests of chinchilla breeding stock at Smithfield. These lice seem to be responsible for serious scratching and biting of the fur in a number of these valuable animals. (Det. by A. B. Gurney.)

HOUSEHOLD AND STORED-PRODUCTS INSECTS

TERMITES (Isoptera)

Virginia. L. A. Hetrick (August 24): Reproductive individuals of Reticulitermes hageni Banks swarmed from a house in West Point on August 15.

R. A. St. George (August 26): R. hageni was attacking woodwork of building and emerging from house at Cherrydale. Many winged adults swarming today.

Florida. E. A. Back (July 22): A drywood termite Kalotermes snyderi Light found infesting furniture in Sarasota.

Nebraska. H. D. Tate (August 16): R. tibialis Banks reported as damaging buildings in Jefferson and Dodge Counties on July 17 and 25, respectively, fields in Franklin County on August 7, and trees and shrubs in Gosper County on August 10.

Oklahoma. C. F. Stiles (August 23): Termites reported as damaging a house at Idabel.

ANTS (Formicidae)

Maine. R. A. St. George (August 21): Specimens of Formica fusca L. var. collected on August 17 in flower garden of house in Bath. (Det. by M. R. Smith.)

H. B. Peirson (August 19): Camponotus herculeanus pennsylvanicus Deg. injury to summer buildings reported as common during July and August. Winged males and females present on July 26 at Harpswell.

Pennsylvania. Mrs. J. Morrissey (August 20): C. herculeanus pennsylvanicus infesting house in Wilkes Barre. (Det. by M. R. Smith.)

Maryland. E. N. Cory (August 24): Monomorium pharaonis L. and other species on lawns, gardens, and in houses generally.

Mississippi. C. Lyle (August 26): Specimens received of Iridomyrmex humilis Mayr, which were numerous where no treatment was used last year in Harrison and Hancock Counties; also reported in Monroe and Prentiss Counties, in the Durant area and the Jackson area. Specimens also received from Copiah County.

Specimens of the fire ant (Solenopsis xyloni McCook) received from Bolivar County late in July, and complaints reported from Durant area. Very annoying both in houses and on lawns on the Gulf coast. M. pharaonis received from Jackson County and a complaint from Hancock County. Reported as abundant in Harrison County and causing a number of complaints in Pearl River County. M. minimum Buckl. received from Clay County, where they were causing annoyance in a house. Specimens of C. caryae rasilis Wheeler found in Oktobbeha County. Specimens of Crematogaster ashmeadi Mayr collected in a house in Washington County.

Luisiana. Mrs. F. D. Folweiler (August 19): M. pharaonis was annoying in a house at University. (Det. by M. R. Smith.)

Missouri. A. C. Burrill (August 1): Both Tapinoma sessile Say and M. pharaonis reported as getting into kitchen and pantry in house in Cole County on June 13 to 20, and on June 28 to July 4 and later.

Minnesota. M. W. Wing (August 15): C. herculeanus pennsylvanicus present on oaks in Minneapolis.

GERMAN COCKROACH (Blattella germanica L.)

Mississippi. C. Lyle (August 26): Reports of annoyance received from Neshoba and Warren Counties. Abundant in Tate and Hinds Counties, and along the Gulf coast. Many complaints reported in the Durant area.

Nebraska. H. D. Tate (August 16): Reported as infesting the basement of a house in Colfax County on July 19.

Missouri. A. C. Burrill (July 24): Reported as bad in house in Jefferson City.

Washington. L. G. Smith (August 7): Specimens sent in from Everett, Snohomish County, on July 30.

ORIENTAL COCKROACH (Blatta orientalis L.)

Minnesota. M. W. Wing (August 15): Found in old house at Stillwater.

BROWN-BANDED COCKROACH (Supella supellectilium Serv.)

Oklahoma. F. A. Fenton (August 22): Reported from North McAlester, Pittsburg County.

HOUSE CRICKET (Gryllus domesticus L.)

New Jersey. E. A. Back (September 3): On July 22 reported as troublesome in houses within $\frac{1}{4}$ mile of the city dump in Rockaway. Infestation increased greatly, but by August 16 the situation had improved as result of action taken by local health department.

Virginia. E. A. Back (July 24): Entire section of Cherrydale near a dump reported as overrun. (August 23): Reported as troublesome in houses in Alexandria,

coming from city dump.

CLOTHES MOTHS (Tineidae)

- Connecticut. E. A. Back (August 9): Tremendous numbers of adults of Tineola biselliella Hum. collected in rooms of insulated house in Middletown.
- New York. E. A. Back (August 23): Insulation badly infested with T. biselliella found in walls and between floors, from which adults were emerging in numbers in house in New York City.
- Maryland. E. A. Back (July 23): Installing of insulation led to development of infestation of T. biselliella in house in Baltimore which had been free from moths.
- Minnesota. M. W. Wing (August 15): T. biselliella present at Blue Earth.
- Alabama. J. M. Robinson (August 17): Tinea pellionella L. found in dwelling at Fairhope on August 6 and at Headland on July 20.
- Nebraska. H. D. Tate (August 16): Requests for control of T. biselliella received from Pierce, Box Butte, and Holt Counties during the period from July 16 to August 15, inclusive.
- Texas. R. K. Fletcher (August 13): T. pellionella was infesting rugs in Brooks County on August 7.

TOBACCO MOTH (Ephestia elutella Hbn.)

- Virginia. H. N. Pollard and C. O. Bare (August 23): Emergence of second-generation adults has been increasing rapidly during the last 10 days in stored tobacco at Richmond. Microbracon hebetor Say was rapidly increasing in numbers.

ALMOND MOTH (Ephestia cautella Walk.)

- Florida. E. A. Back (August 6): Reared from seeds of novelty necklace received in June from store in Miami. Larvae had eaten out the seed kernels and cut the thread upon which seed had been strung. (Det. by C. Heinrich.)

A BEETLE (Coninomus constrictus Gyll.)

- New York. E. A. Back (July 23): Adults received from newly constructed apartment house in New York City. (July 25): Reported to be penetrating screens in the Bronx. (July 27): Found mostly in closet spaces of building nearing completion in New York City. (Det. by W. S. Fisher.)

A DERMESTID (Dermestes cadaverinus F.)

- New York. E. A. Back (August 10): Larvae and adults infesting a kitchen in the Bronx, New York City. (Det. by H. S. Barber.)

CIGARETTE BEETLE (Lasioderma serricorne F.)

Virginia. H. N. Pollard and C. O. Bare (August 23): Approximately 4 percent as numerous in stored tobacco about Richmond as during August 1939.

A SPIDER BEETLE (Gibbium psylloides Czemp.)

Virginia. E. A. Back (July 6): Adults found in dishes in cupboard in Richmond.

WHITE-MARKED SPIDER BEETLE (Ptinus fur L.)

Minnesota. E. A. Back (August 15): Bran for cattle feed received from Saint Paul badly infested. (Det. by W. S. Fisher.)

DRUG STORE WEEVIL (Stegobium paniceum L.)

Maine. H. B. Peirson (August 19): Very numerous on June 18 about kitchen and pantry of house at Augusta.

WOOD BORERS (Coleoptera)

General. E. A. Back (August 16): Hadrobregmus carinatus Say found heavily infesting cellar stairs, stair rails, and other wooden objects in house in Chelsea, Mass. Parasites present (det. by C. F. W. Muesebeck as Heterospilus sp.). Adults and parasites abundant and annoying in kitchen of house mentioned above, where they have been found crawling on windowsills since August 5. On August 25 an active infestation of H. carinatus was found in frame of antique maple table in Chaplin, Conn. On July 27 H. carinatus was found in newly furnished house in Westchester County (det. by W. S. Fisher).

Maine. H. B. Peirson (August 19): Phymatodes testaceus variabilis L. adults were emerging abundantly from beech and yellow birch firewood in cellar of building at Orono on August 1.

Connecticut. E. P. Felt (August 26): Leperisinus aculeatus Say emerged in large numbers from firewood and appeared in nearby houses at Southport.

New York. W. Glasel (August 16): L. aculeatus was collected in great numbers on July 30 in house at Scarsdale. (Det. by M. W. Blackman.)

Virginia. L. A. Hetrick (August 15): Numerous requests for control of Xyletinus peltatus Harr. received from tidewater area. Feeding of larvae noted because of boring dust being forced from their burrows.

WHARF BORER (Nacerda melanura L.)

Michigan. R. Hutson (August 23): Specimen received from Royal Oak. Causing considerable damage in some places.

INSECT PEST SURVEY BULLETIN

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ALFALFA WEEVIL SCOUTING, 1940

By J. C. Hamlin, senior entomologist
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Scouting for alfalfa weevil during 1940 was limited by closing of the alfalfa weevil laboratory consequent upon completion of the practical aspects of the problem. The work performed, in cooperation with State officials, included (1) scouting along the Union Pacific Railroad right-of-way through Kansas and Nebraska and near its eastern terminus in Iowa, as well as in several Nebraska counties that received alfalfa hay from weevil-infested areas of the Great Basin during temporary inoperation of Nebraska's alfalfa weevil quarantine during the winter of 1935; (2) a survey of the Saratoga and Encampment areas of Carbon County, Wyo.

The scouting in Kansas, Nebraska, and Iowa involved taking 112,100 sweeps in 110 fields located in 28 counties. The results were negative and are presented in table 1.

Table 1.--Detailed data on special scouting for alfalfa weevil in the Midwest from May 19 to 26, 1940

County	Fields swept	Area of all fields swept	Sweeps	Fields infested
	Number	Acres	Number	Number
<u>Kansas:</u> ^{1/}				
Ellis-----	7	69	8,900	0
Ellsworth-----	3	32	2,900	0
Saline-----	7	96	7,050	0
Dickinson-----	3	35	3,400	0
Geary-----	1	5	1,050	0
Riley-----	3	82	3,550	0
Pottawatomie-----	7	55	6,250	0
Shawnee-----	5	52	5,400	0
Wyandotte-----	3	16	4,250	0
Leavenworth-----	2	50	2,500	0
Douglas-----	1	40	1,700	0
Jefferson-----	2	39	2,300	0
Marshall-----	4	46	5,500	0
<u>Iowa:</u>				
Pottawattamie-----	6	42	4,950	0
Harrison-----	4	73	4,150	0
<u>Nebraska:</u> ^{2/}				
Douglas-----	2	62	2,800	0
Lancaster-----	5	100	6,000	0
Saunders-----	2	55	1,600	0
Dodge-----	3	97	2,650	0
Colfax-----	2	22	1,050	0
Platte-----	2	15	1,450	0
Merrick-----	4	152	3,400	0
Valley-----	7	260	5,300	0
Hall-----	2	15	1,700	0
Buffalo-----	6	433	6,100	0
Dawson-----	6	550	6,200	0
Lincoln-----	6	186	5,450	0
Keith-----	5	150	4,550	0

^{1/} L. M. Gates, of the Nebraska Department of Agriculture and Inspection, cooperated in this work.

^{2/} R. G. Yapp, of the Kansas Entomological Commission, cooperated in this work.

In Carbon County, Wyo., 5,650 sweeps were taken in 11 fields and 4 of these fields were found to be infested. The purpose was to determine whether the alfalfa weevil occurred in rather isolated areas of a county already known to support infestations. The sweeping in the Saratoga area showed a light but general infestation, the alfalfa weevil being taken from 3 of 4 fields swept. Our survey methods showed only 1 field infested of the 7 swept in the Encampment area but intensified sweeping would doubtless reveal a general and very light weevil infestation there also. The results are summarized in table 2.

Table 2.--Summary of scouting for alfalfa weevil in the Saratoga and Encampment areas of Carbon County, Wyo., June 28, 1940

Area	:Fields :swept	:Area of all :fields swept	:Height of : alfalfa	: :Sweeps	:Fields :infested
	: <u>Number</u>	: <u>Acres</u>	: <u>Inches</u>	: <u>Number</u>	: <u>Number</u>
Saratoga----	: 4	: 70	: 12-36	: 2,700	: 3
Encampment--:	: 7	: 63	: 12-30	: 2,950	: 1
	: :	: :	: :	: :	: :
Total-----:	: 11	: 133	: 12-36	: 5,650	: 4
	: :	: :	: :	: :	: :

No reports have been received concerning scouting in other States during 1940.

INSECT PEST SURVEY BULLETIN

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THE MORE IMPORTANT RECORDS FOR SEPTEMBER

Fall armyworm was reported in destructive abundance late in August and early in September in many localities in Mississippi and in southern California, late corn being the principal crop attacked.

Light-to-moderate infestations of hessian fly are reported from throughout Illinois, southeastern Nebraska, southern Iowa, and west-central Missouri.

Damage by corn ear worm was generally reported as later and less severe than usual in the Northern States.

European corn borer in the New England area was less troublesome than usual. In eastern New York a heavy outbreak occurred in Monroe County. Damage by this insect was also reported from Delaware, Maryland, and Virginia, a very severe outbreak occurring in Princess Anne County, Va. Light infestations were reported from four counties west of the heretofore known infested area in Wisconsin.

Severe damage by second-brood chinch bugs was reported from Missouri, with other heavy infestations from central, eastern, and southeastern Nebraska and light infestations in southeastern Iowa.

Corn leaf aphid is generally more prevalent than for several years in Indiana and a few localities in Minnesota and Nebraska.

A very heavy infestation of walkingsticks was reported from a small area in Wisconsin, where forest trees and raspberries were practically defoliated.

Rather heavy infestations by second-generation codling moths were reported from the New England, the South Atlantic, and the East Central States. Heavy infestations were reported from parts of Nevada and Washington.

Extensive and rather severe damage by apple maggot was reported from southern New England.

Comstock's mealybug had completed its second-generation oviposition by the end of September and early laid eggs of the third generation began hatching about August 1 in Albemarle County, Va. Damage in this county ranged from 5 to 80 percent.

Owing to the lack of a second-brood infestation in peaches by the plum curculio in Georgia, the hibernating population will be lighter than average in that State.

Pear psylla has been discovered threateningly near important fruit-growing areas in Washington State.

Internal rot of fresh figs, which is spread by Blastophaga, is seriously prevalent this year in California. Heavy spoilation caused by the dried-fruit beetle is very serious in the Fresno area.

Potato flea beetle damage was extremely heavy in parts of Washington State.

Mexican bean beetle recovered very materially in the South Atlantic States from the severe set-back it received in the very hot midsummer weather.

Damage to squash by the squash bug was reported from widely scattered areas, including Maine, Wisconsin, Iowa, Nebraska, Utah, and Oregon.

Late damage to cotton by boll weevil was reported from a number of areas in the eastern part of the Cotton Belt; however, the fall population appears to be lower than usual, except in parts of Texas.

Bollworm damage continued into September throughout most of the Cotton Belt.

Leaf worms were generally prevalent in the East, with slight damage to cotton, however. In Texas they were less injurious than for many years.

The cotton leaf perforator was more prevalent in Pima County, Ariz., than for many years.

Fall webworm was reported as damaging persimmon, sourwood, and pecan in the South Atlantic and Gulf States.

GENERAL FEEDERS

GRASSHOPPERS (Acrididae)

- Tennessee. L. B. Scott (September 19): Grasshoppers caused serious damage to tobacco early in the season in north-central Tennessee. Damage decreased as season progressed but moderate damage is still being done. Damaged more tobacco in 1940 than all other insects combined.
- Indiana. L. F. Steiner (September 5): Completely defoliated many apple replants in some orchards in the Vincennes area.
- Ohio. T. H. Parks (September 21): Became quite abundant during August in half a dozen central and several northern Ohio counties. Some defoliation of young apple trees occurred and in Pickaway County a 15-acre field of corn was ruined. Hybrid corn strains show marked difference in susceptibility to injury.
- Michigan. R. Hutson (September 23): Eggs, chiefly Melanoplus mexicanus Sauss., more numerous than last year in Emmet, Cheboygan, Antrim, Charlevoix, Presque Isle, Alpena, Crawford, Otsego, and Montmorency Counties.
- Wisconsin. E. L. Chambers (September 26): Damage much less this summer than for several years. Adult survey indicates that serious trouble may be expected from less than one-fourth of the area previously having serious losses. Considerable migration of M. mexicanus during latter part of August. Very few eggs laid up to September 15.
- Iowa. H. E. Jaques (September): Rather scarce in northwestern and southeastern parts of the State, but rather widely scattered throughout southwestern quarter.
- Missouri. G. D. Jones (September 25): M. differentialis Thos. still ovipositing in central Missouri. Recent observations in scattered areas in southeastern Missouri showed a considerable second-brood infestation of fourth-instar nymphs of M. bivittatus Say.
- Oklahoma. C. F. Stiles (September 27): Reported as numerous with some local heavy infestations throughout northeastern Oklahoma. Principal species involved is M. differentialis. Second brood M. mexicanus has been hatching over a period of several weeks in the northern half of Texas County and the northeastern part of Cimarron County and is damaging early sown wheat. Grasshoppers are now in all instars and from 30 to 40 percent are adults.
- F. A. Fenton (September 28): The most serious insect outbreak in the State in the past month is that of M. mexicanus in Cimarron and Texas Counties. The second generation of this grasshopper is now developing and strong flights have been reported coming in from Kansas. Eggs of this species were deposited throughout the northern part of Texas County and in small areas in Cimarron County in July. These eggs have hatched and the young hoppers are damaging newly seeded wheat and rather mature grain sorghums. About 25 to 50 percent of these grasshoppers had matured to adults by September 25.

Utah. G. F. Knowlton (September 18): Still active and laying eggs in many northern localities.

Washington. L. G. Smith (August 27): Northward flight from heavily populated M. mexicanus area in the extreme western part of the Yakima Indian Reservation occurred on August 10. Migrations occurred from lightly populated dry rangeland areas into truck gardens in Benton and Franklin Counties during the week ended August 17. Population in truck gardens was light to moderate.

California. S. Lockwood (September 18): M. bivittatus is now depositing eggs in the northern quarter of the State. Egg development of M. devastator Scudd. has hardly started. Most females have shrunken bodies, though in Siskiyou County beginning of egg development was observed a week ago. Considerable work is being done now on the second hatch of the migratory M. mexicanus in the Imperial Valley. Eggs of Oedaleonotus enigma Scudd. have been deposited since early in June.

MORMON CRICKET (Anabrus simplex Hald.)

California. S. Lockwood (September 18): Very light infestation found in southwestern part of Mono County, in the Little Round Valley area.

EUROPEAN EARWIG (Forficula auricularia L.)

New York. R. E. Horsey (September): Numerous in gardens and entering houses in Rochester in the latter part of August.

Washington. L. G. Smith (August 28): Very common in gardens at Yakima on August 19, attacking various plants.

JAPANESE BEETLE (Popillia japonica Newm.)

Rhode Island. B. Eddy (September 24): Fifty percent more abundant than last year. Spreading but not in alarming numbers.

Connecticut. J. P. Johnson (September 24): Feeding on low vegetation, shrubs, and some of the smaller trees. Adults emerged 2 to 3 weeks late.

New York. M. D. Leonard (September 24): A few beetles were reported feeding in a garden at Bay Shore, Long Island.

New Jersey. M. D. Leonard (September 13): A number of beetles were feeding on flowers of marigolds and roses in a large garden at Wyckoff. Several apple trees, Virginia creeper vines, and grapevines, as well as birches, showed considerable foliage injury in the same garden. Quite a few beetles were feeding on marigold flowers in a garden at Montclair.

GREEN JUNE BEETLE (Cotinis nitida L.)

Massachusetts. E. P. Felt (September 24): Reported as feeding on exudations from trees at Amherst.

ennsylvania. E. P. Felt (September 24): Reported as obtaining food from trees at Philadelphia.

aryland. E. N. Cory (September 21): Attacking spinach, kale, and other seedling crops.

ennessee. G. M. Bentley (September 25): Very scarce this year.

BUMBLE FLOWER BEETLE (Euphoria inda L.)

Michigan. R. Hutson (September 23): Common at Fenton.

ennessee. G. M. Bentley (September 16): Unusually numerous this year, primarily in the blossoms of many flowering shrubs.

CUTWORMS (Noctuidae)

tah. C. J. Sorenson (September 17): The pale western cutworm (Agrotis orthogonia Morr.) was found feeding in chrysothamnus blossoms in the dry-farm area of the Lehi-Cedar Valley districts. None found on September 10.

Washington. C. W. Getzendauer (August 10): The variegated cutworm (Peridroma margaritosa Haw.) defoliated potato vines and tubers were attacked both below the surface of the ground and on the surface, if left out over night during digging. Rhubarb defoliated and stems injured, causing rot in a field adjacent to the potatoes at Puyallup. (August 15): Causing moderate damage. From one to several larvae at base of nearly every tomato plant in a garden at Puyallup.

(August 3): A noctuid, Acronycta sp., caused moderate damage to leaves and some damage to flowers of tuberous begonia under slats in a small commercial planting at Puyallup.

FALL ARMYWORM (Lophygnathus frugiperda A. & S.)

Mississippi. C. Lyle (September 25): Specimens received from Hinds County late in August and reported as seriously damaging late corn at Choctaw, Holmes, Lincoln, and Webster Counties, in the Jackson district, and in northeastern counties. Sorghum was being injured in Lincoln County.

L. Bridges (August 27): Light-to-heavy damage to late corn in Marion and Walthall Counties. Late corn attacked chiefly as it is planted after Irish potatoes and other truck crops.

Louisiana. C. O. Eddy (September 28): The grass worm has damaged late corn.

California. R. E. Campbell (September 19): Several fields of young sweet and field corn in Orange and Los Angeles Counties, suffered considerable foliage injury. Leaves were shredded and there were considerable feeding on the tassels.

VELVETBEAN CATERPILLAR (Anticarsia gemmatilis Hbn.)

Florida. J. R. Watson (September 23): Not as serious as in former years, undoubtedly because of severe freeze last winter.

Louisiana. C. O. Eddy (September 28): The soybean caterpillar was observed at Baton Rouge on September 23 in adult and larval stages.

BUTTERFLIES (Lepidoptera)

Florida. H. T. Fernald (September 10 and 11): Considerable numbers of Catopsilia eubule L. and Dione vanillae L. flying southward along the ocean on land just back of the beach proper at Daytona, all heading the same way and obliquely fighting a rather strong east wind. No evidence of this flight either before or after these two dates.

CEREAL AND FORAGE - CROP INSECTS

WHEAT

HESSIAN FLY (Phytophaga destructor Say)

Illinois. W. P. Flint (September): At present there is a light-to-moderate infestation in practically all sections of the State.

Nebraska. H. D. Tate (September 16): Reported from August 27 to September 1 as occurring in Otoe, Lancaster, Pawnee, Cass, and Butler Counties. Moderately heavy in a few southeastern counties.

Iowa. H. E. Jaques (September): Light infestations reported in seven southern counties.

Missouri. L. Haseman (September 25): Practically no evidence of flaxseeds in the stubble examination covering southwestern, southeastern, northeastern, northwestern, and central Missouri. In central and west-central Missouri, where summer rains caused scattered growth of volunteer wheat, a few fields show that 20 percent of the plants contain flaxseeds.

CORN

CORN EAR WORM (Heliothis armigera Hbn.)

Maine. J. H. Hawkins (September 20): Infestation is later than usual and less numerous than last year. Only ears of corn of the open type were infested.

Indiana. E. V. Walter (August 30): Rather abundant in sweet corn silking between July 10 and 18, but almost entirely absent since then. Nearly all eggs appear to have been deposited from July 14 to 18.

Iowa. H. E. Jaques (September): Light infestations in scattered localities throughout the State.

Missouri. L. Haseman (September 24): Extremely heavy brood in sweet corn and late field corn throughout central Missouri and reports indicate that the same is true for much of the State. Most of the larvae of this brood are practically full grown or already leaving the ears.

Washington. L. G. Smith (August 28): Abundant as usual on corn in Yakima County. On the night of August 13, 110 moths were captured in a light trap placed in a cornfield.

EUROPEAN CORN BORER (Pyrausta nubilalis Hbn.).

Massachusetts. A. I. Bourne (September 24): Second brood appeared somewhat later than normal and damage has been very slow in developing. Moths observed in or near cornfields within the last week. Damage by this brood much less than usual.

Rhode Island. B. Eddy (September 24): Stalks, tassels, and stubble have an average of 3 to 6 borers. Attacking corn ears much less than usual.

New York. N. Y. State Coll. Agr. News Letter (September 3): Still causing much damage to corn, the worst for some years in Monroe County.

Delaware. L. A. Stearns (August 24): Reported as infesting one-third of stalk in a corn planting at Millsboro.

Maryland. E. N. Cory (September 21): Large increase in Harford County and in southern Eastern Shore counties.

Virginia. H. G. Walker and L. D. Anderson (September 24): Severe outbreak occurred in Pungo district of Princess Anne County, 1 dissected cornstalk containing 162 borers and several others containing more than 100. Still relatively scarce in Kempsville district of Princess Anne County, although it appears to be somewhat more abundant than last year. A field of corn near New Church, on the Eastern Shore, was found to be rather heavily infested, 1 stalk containing 45 borers.

Ohio. E. W. Mendenhall (September 11): Numerous and causing considerable damage to field corn in Perry Township, Lake County.

Wisconsin. E. L. Chambers (September 16): First-record infestations observed in Portage, Waushara, Columbia, and Walworth Counties, with no noticeable damage. Reported on 86 farms in 26 counties, the borers ranging from 1 to 3 or 4 per hill and only a few hills found infested in a field.

SOUTHERN CORNSTALK BORER (Diatraea crambidoides Grote)

Virginia. L. A. Hetrick (September 5): Severely injured late corn planting in Mathews County.

SOUTHWESTERN CORN BORER (Diatraea grandiosella Dyar)

Oklahoma. C. F. Stiles (September 27): Severely damaging corn being grown on subirrigated soil in the vicinity of Tipton, Tillman County. On September 7 many stalks contained practically full-grown larvae, and a few pupal cases were found where adults had emerged earlier.

SADDLEBACK CATERPILLAR (Sibine stimulea Clem.)

Delaware. L. A. Stearns (September 5): Reported on rose in some numbers. Specimens received from Wilmington.

Virginia. H. G. Walker and L. D. Anderson (September 24): Larvae reported as being so abundant in some cornfields on the Eastern Shore that their nettling hairs are causing considerable pain and inconvenience to harvesters.

Ohio. T. H. Parks (September 24): Specimens found on corn received from many widely scattered points during August and September.

CHINCH BUGS (Blissus leucopterus Say)

Iowa. H. E. Jaques (September): Light infestations reported in scattered localities in northwestern and southeastern Iowa, with light-to-moderate infestations throughout the southwestern part of the State.

Missouri. P. C. Stone (September 25): Weather conditions favorable for development of second brood. Most bugs were in third instar in central Missouri during week ended September 21. Severe second-brood damage noticed in north-central Missouri, with moderate-to-heavy infestation in cornfield in central part of State. Larger numbers of adults will go into hibernation this fall than for several years.

Nebraska. H. D. Tate (September 16): Reported as being abundant in Madison County on August 16. Infestation remains at a destructive level in a number of central, eastern, and southeastern counties, despite reduction in population, owing to weather conditions during hatching and early nymphal growth of second generation. Damage evident on corn and sorghum.

CORN LEAF APHID (Aphis maidis Fitch)

Indiana. E. V. Walter (August 30): More abundant than it has been for several years. Parasites and predators increased during the last few years and nearly cleared up the infestation by August 20.

Minnesota. A. G. Ruggles and assistants (September 10): Very prevalent on cotton tassels late in July and early in August in Cottonwood and Wilkin Counties.

Nebraska. H. D. Tate (September 16): Specimens received from Madison and Hay Counties on August 16 and 21, respectively. Reported as heavily infesting corn and sorghum.

CORN LANTERNFLY (Peregrinus maidis Ashm.)

Louisiana. C. O. Eddy (September 28): This insect has been very abundant in young corn in the last 6 weeks.

CORN ROOTWORM (Diabrotica longicornis Say)

Rhode Island. B. Eddy (September 24): Reported for first time this year. Found in cornfield.

Ohio. T. H. Parks (September 13): Specimens received from Cincinnati, where they were very abundant on green corn silks.

Iowa. H. E. Jaques (September): Light infestations reported in Crawford, Shelby, Mahaska, and Des Moines Counties.

ALFALFA

ALFALFA WEEVIL (Hypera postica (Gyll.))

California. A. E. Michelbacher (September 24): Very scarce in infested portions of San Joaquin Valley, and in the region adjacent to the San Francisco Bay. Larvae were collected in only one field on September 23.

ALFALFA CATERPILLAR (Colias corytheme Bdv.)

California. A. E. Michelbacher (September 24): No longer troublesome in the San Joaquin Valley and the San Francisco Bay region, largely because of a wilt disease of the larvae and because of the larval parasite Apanteles flaviconchae Riley. Nearly 100 percent of the small larvae are parasitized.

SORGHUM

SORGHUM WEBWORM (Celama sorghiella Riley)

South Carolina. F. Sherman and W. C. Nettles (September 24): Abundant in young sorghum seed heads late in August. A considerable number are parasitized.

F. McAlister (September 14): Specimens received which were reared from seed heads of sorghum collected in field at Clemson on September 6. (Described by C. Heinrich.)

COWPEAS

COWPEA CURCULIO (Chalcodermus ceneus Boh.)

Georgia. T. L. Bissell (September 21): Less numerous this month at Experiment Peas sent from Blairsville, northeastern Georgia, on September 5 had less than 1-percent infestation.

COWPEA WEEVIL (Callosobruchus maculatus F.)

Georgia. T. L. Bissell (September 21): Eggs often seen in field on cowpea pods. Small parasite present, presumably Uscana semifumipennis Gir.

TIMOTHY

A MITE (Callyntrotus hystrix Nal.)

Virginia. F. W. Poos (May 28): Reported as occurring on timothy at Arlington. First record of occurrence in North America. Some injury observed but whether it was caused by this mite was not definitely determined. (Det. by E. H. Keifer.)

SUGARCANE

SUGARCANE BORER (Diatraea saccharalis F.)

Louisiana. A. L. Dugas (September 28): Infestation throughout cane area extremely light, only a few localized areas being infested to any appreciable extent. Parasitization by Trichogramma is high in most fields.

SUGARCANE ROOTSTOCK WEEVIL (Anacetrinus subnudus Buch.)

Louisiana. A. L. Dugas (September 28): Damage about normal. This weevil was probably not affected by the severe winter and by the unfavorable weather during the spring and summer.

F R U I T I N S E C T S

SHOT-HOLE BORER (Scolytus rugulosus Ratz.)

Alabama. J. M. Robinson (September 18): Reported as occurring on peach trees at Florence on August 20.

Mississippi. C. Lyle and assistants (September 25): Abundant in orchards in the Meridian district. Report of injury received from Clarke County.

ROUNDHEADED APPLE TREE BORER (Saperda candida F.)

Massachusetts. L. R. Fike (September 9): Specimens found in trunk or bark and roots of apple trees at Great Barrington.

Missouri. L. Hasenon (September 25): Reported as scarce through central Missouri. Orchards abundantly infested in previous years show practically no infestation.

Nebraska. H. D. Tate (September 16): Reported in Clay County on August 30.

SAN JOSE SCALE (Aspidiotus perniciosus Comst.)

New York. R. E. Horsey (September 7): Severely infesting several small mountain ash trees at Rochester.

Wisconsin. E. L. Chambers (September 26): Still limited to a few counties but gradually spreading northward. Now established in Brown County at Green Bay and De Pere.

Mississippi. C. Lyle (September 25): Reported as killing young peach trees in Hinds County, and heavy infestations noted on apple and peach in the Meridian area.

CHERRY SCALE (Aspidiotus forbesi Johns.)

South Carolina. W. M. Upholt (September 19): Less plentiful than last year.

WHITE PEACH SCALE (Aulacaspis pentagona Targ.)

Virginia. H. G. Walker and L. D. Anderson (September 24): Appears to be causing more trouble than last year in the Norfolk district.

Mississippi. D. W. Grimes (September 25): Very abundant on a privet hedge in Sunflower County.

APPLE

CODLING MOTH (Carpocapsa pomonella L.)

Maine. F. H. Lathrop (September 23): Unusually abundant in apple-growing sections of the State.

New York. D. W. Hamilton (September 23): Very few adults taken in bait traps since September 1 at Poughkeepsie in the Hudson River Valley. Only an occasional new larval entrance now found in the fruit.

Virginia. A. M. Woodside (September 24): Infestation on apple generally heavier than last year in Augusta County. A few moths are still being captured in bait traps. Some larvae pupating as late as August 20.

South Carolina. W. M. Upholt (September 19): Very abundant in the Clemson College apple orchard, injured fruit running up to 60 and 70 percent of the Golden Delicious as they are harvested.

Ohio. T. H. Parks (September 25): A few adults still being caught in bait pans at Columbus until September 10. More than usual numbers of second-generation larvae encountered.

Indiana. L. F. Steiner (August 29): Bait-trap catches in orchards in the Vincennes area during last 10 days total 7,444. Weather conditions somewhat unfavorable to adult activity have reduced the catches since the peak on August 25 and 26, but weekly treatment of 10 trees today yielded the largest population of the season (87 moths, as compared with the previous high of 68 on July 18), so that period of maximum oviposition by this brood may now be occurring. Female population in trees today was twice that of a week ago and exceeds the male population. (September 5): Bait-trap catches in Vincennes area about one-third as high as on August 25 and 26. Very heavy third-brood attack under way. Damage appears more severe than in 1939, this being true in many instances on varieties bearing full crops, although their proximity to light-bearing or nonbearing trees

tended to cause a concentration of the population on them.

- General. L. F. Steiner (September 21): An unusually heavy and late third-brood attack was observed during the first three weeks of September throughout southwestern Indiana, northern Kentucky and adjacent areas in Illinois. The infestation is considerably above normal.
- Missouri. L. Haseman (September 24): Many of the third-brood larvae in central Missouri now leaving fruit.
- Nevada. G. G. Schweis (September 18): Damage unusually severe on pears and apples in western Nevada. Untreated fruit practically 100-percent infested.
- Washington. L. G. Smith (August 20): High point reached on August 4 and another on August 16-18. Oviposition heavy throughout month. Beginning about July 10, some larvae failed to pupate and, for week ended July 19, 4 percent showed indications of delaying pupation until spring. Increase in number of larvae leaving fruit noted last week.
- Washington. E. J. Newcomer, et al. (September 27): More abundant in the Yakima Valley as compared with average year. Pupation of larvae decreased more rapidly in August than in 1939, with the result that there were fewer moths in the orchards in September than last year. Oviposition declined during the month. However, growers report that their crops are wormier than in 1939, even though the same spray schedule was followed. This may be the result of a gradual build-up of population over several years on account of mild winters and an increasing number of neglected orchards.

LAPPET MOTH (Epicnaptera americana Harr.)

- Washington. E. J. Newcomer (July 12): A specimen taken at light in an apple orchard in Yakima. (Det. by C. Heinrich.)

APPLE MAGGOT (Rhagoletis pomonella Walsh)

- Massachusetts. A. I. Bourne (September 24): Extensive damage reported from southeastern part of State, apparently caused by late-season attack which occurred after date of last treatment, or by migration of flies which emerged from uncared-for trees or blocks in immediate vicinity of treated orchards.
- Connecticut. P. Garman (September 24): Severe in untreated or not fully treated orchards in New Haven County. More abundant than usual.

LEAFHOPPERS (Cicadellidae)

- Connecticut. P. Garman (September 24): Typhlocyba ponaria McAtee moderately abundant in general to very abundant in a few orchards in New Haven County.
- Indiana. L. F. Steiner (September 5): Leafhoppers severe enough in some treated orchards round Vincennes to cause some reduction in size of fruit.

CONSTOCK'S MEALYBUG (Pseudococcus constocki Kuw.)

Virginia and West Virginia. G. J. Haussler (September 30): Found infesting apple this season in the vicinity of Hollins and Cloverdale (Botetourt County), Lovington (Nelson County), general throughout Albemarle County, and at Berryville (Clark County), Va. and in Jefferson and Berkeley Counties of West Virginia at Ranson and Knowlesville, respectively. In Albemarle County, the second generation had completed oviposition by September 26, eggs of the third generation began hatching about August 1, and first and second instar nymphs of that generation were feeding in abundant numbers throughout September. Mealybug damage to apples in this county ranged from approximately 5 to 81 percent, with Winesap showing the most severe damage.

South Carolina. W. M. Upholt (September 19): More plentiful than ever, but has spread very little this year.

Ohio. J. S. Houser (September 12): Specimens of small mealybugs collected from Dutchman's pipe vine on September 6 and September 14 at Painesville. (Det. by H. Morrison.)

APPLE SEED CHALCID (Callinome druparum Boh.)

Ohio. T. H. Parks (September 20): Apples deformed in a commercial orchard near Wooster. Grimes Golden is chief variety affected, with some trees having from 50 to 60 percent of the fruits deformed. Most seeds contain larvae.

PEACH

ORIENTAL FRUIT MOTH (Grapholitha molesta Busck)

Connecticut. P. Garman (September 24): Severe in many peach orchards.

Missouri. L. Haseman (September 24): Pears and apples in central Missouri showing considerable injury in some orchards. Larvae approaching maturity.

Mississippi. C. Lyle (September 25): Injured peach twigs received from Madison County. Injury reported from Attala and Hinds County, the Meridian district, and the northeastern counties. Frequent injury to pear fruit observed in southeastern counties.

Texas. W. S. McGregor (September 21): Reported as injuring peach twigs in Harrison County on September 1.

PEACH BORER (Conopia exitiosa Say)

Georgia. O. I. Snapp (September 18): Heavy moth emergence last week. Infestation at Fort Valley, central Georgia, no heavier than that of an average year.

Mississippi. C. Lyle and assistants (September 25): Infestations observed in the Meridian district.

Missouri. L. Haseman (September 25): Reported by peach growers in southeastern and southwestern Missouri, but extremely scarce throughout central Missouri.

Nebraska. H. D. Tate (September 16): Reported from Greeley and Otoe Counties on August 23 and September 9, respectively.

Texas. R. K. Fletcher (September 16): Injuring peach in Shelby County.

PLUM CURCULIO (Conotrachelus nenuphar Hbst.)

Georgia. O. I. Snapp (September 20): Since there was no second-brood plum curculio attack on the Georgia peach crop this year, no usual late-summer increase of adults in the orchards resulted from the emergence of second-generation adults. Hibernating population will be lighter than that of an average season. After peach harvest, 59.4 percent of new beetles deposited second-generation eggs in the insectary. This is 10.6 percent less than in 1937 and 11.6 percent less than in 1938, but 10.7 percent more than in 1936 and 7.1 percent more than in 1939. No second-generation eggs were deposited before the end of peach harvest. Percentages of new beetles depositing second-generation eggs by the end of peach harvest in other years are as follows: 1937, 61 percent; 1938, 37 percent; 1939, 46.2 percent. Last second-generation egg was deposited on September 5, as compared with August 3, 1936, August 6 in 1937, August 8 in 1938, and August 16 in 1939.

PEAR

PEAR PSYLLA (Psylla pyricola Foerst.)

Washington. L. G. Smith (September 11): Infestation reported as spreading to Adams and Franklin Counties, having been discovered at both Connell and Page, in Franklin County, which brings it threateningly near to important fruit areas. Effort is being made through tree removal to create a host-free barrier, thus confining the infestation to the severely infested area around Spokane County. Fifty percent of the noncommercial pear and quince trees have already been removed from Franklin County.

COTTONY MAPLE SCALE (Pulvinaria vitis L.)

Washington. L. G. Smith (August 19): Reported as being noted on winter pear trees in Kittitas County.

CHERRY

CHERRY FRUITWORMS (Rhagoletis spp.)

California. D. B. Mackie (September 20): Four adult specimens of R. fausta O. collected in vicinity of Sierra City on August 1, feeding on bitter cherry, (Prunus emarginata.) First indication that this species is native of the State. Its congener, R. cingulata Loew, was found to occur from the Oregon line to the southward through Sequoia National Park, utilizing the same host species. Surveys indicate that this food plant occurs in the Sierra Madre, San Bernardino, and San Jacinto Mountains, as well as in the Sierra Nevada.

PLUM

PEAR SLUG (Caliroa cerasi L.)

Massachusetts. E. P. Felt (September 24): Injurious to purple-leaved plum at Cambridge.

Washington. L. G. Smith (August 14): Reported as commonly found attacking pear and cherry trees in Kittitas County.

BLACKBERRY

ORANGE TORTRIX (Argyrotaenia citrana Fern.)

Washington. W. W. Baker (September 18): Rather abundant around Puyallup in some fields of loganberries and related berries in 1939 and 1940, but in 1940 first evidence was received that blackberries were being attacked. Fruit may be entered or only exterior attacked. Adults present in field since about third week in July and all stages of larvae have been present for most of that time. Slight damage to fruit is by the larger larvae.

GRAPE

GRAPE LEAF FOLDER (Desmia funeralis Hbn.)

Mississippi. N. L. Douglass (September 25): Heavily infesting grape in one locality in Tallahatchie County.

Missouri. L. Haseman (September 25): Brood of maturing larvae still feeding heavily on untreated vineyards through central Missouri.

California. G. H. Kaloostian (August 23): Light to very heavy infestations present in Fresno and Tulare Counties. Damage to grapes, resulting in bunch decay, observed in the Parlier and Selma districts of Fresno County.

GRAPE BERRY MOTH (Polychrosis viteana Clem.)

Ohio. T. H. Parks and G. A. Runner (September 25): Infestation in Ohio grape belt west of Cleveland is again variable from vineyard to vineyard, but decidedly less than in 1939. Few vineyards will suffer heavy losses.

GRAPE TRUNK BORER (Clytopleptus albofasciatus Lap.)

Ohio. G. A. Runner (September 24): This cerambycid continues to be a serious pest in older vineyards near Sandusky, where it is abundant. The inner wood of the main trunks of many vines shows heavy infestations of the partly grown larvae, which form the overwintering stage of this borer.

GRAPE CURCULIO (Craponius inaequalis Say)

Georgia. T. L. Bissell (September 9): Specimens of infested scuppernong grape berries received from Atlanta.

GRAPE LEAFHOPPER (Erythroneura comes Say)

Ohio. G. A. Runner (September 24): Late infestation somewhat lighter than usual in most vineyards in the Sandusky-Lake Erie area.

Utah. G. F. Knowlton (August 27): Causing serious injury to some varieties of grape foliage and to Virginia creeper. (September 12): From 50 to 90 percent of Virginia creeper leaves brown or dropped in northern Utah.

Nebraska. H. D. Tate (August 19): Reported as feeding on woodbine in Franklin County.

Washington. L. G. Smith (September 11): Injury to grapes observed during tour in Benton and Yakima Counties the last week in August.

A LEAFHOPPER (Erythroneura elegantula Osb.)

California. P. Simmons and G. H. Kaloostian (September 13): Collection made today by beating foliage over a net 50 times in a vineyard near Exeter, Tulare County, contained 226 leafhoppers, all apparently of this species. In some sections of the San Joaquin Valley, where control measures were neglected, more damage has been done to grape foliage by this species than for several years. (Det. by P. W. Oman.)

PECAN

PECAN WEEVIL (Curculio caryae Horn)

Georgia. T. L. Bissell (September 21): Moderate-to-heavy infestation at Milne, Zebulon, and Thomaston, central Georgia, on September 17. Ovipositing taking place. At Americus, southwestern Georgia, on September 18, 1 nut out of 50 examined was found with a sting--that is, the weevil puncture had penetrated the shell. Some damage found yearly in this locality, but not to compare with that in the Milner and Zebulon section.

Alabama. J. M. Robinson (September 18): Reported as attacking pecans at Huntsville on August 26.

HICKORY NUT CURCULIO (Conotrachelus affinis Boh.)

Mississippi. C. Lyle (September 25): Larvae infesting pecan nuts were received from Bolivar and Quitman Counties.

HICKORY SHUCK WORM (Laspeyresia caryana Fitch)

Mississippi. C. Lyle (September 25): Specimens received from Quitman County the latter part of August.

BLACK PECAN APHID (Melanocallis caryaefoliae Davis)

South Carolina. F. Sherman and W. C. Nettles (September 24): Troublesome in eastern part of State, especially after treatment with bordeaux was applied.

Georgia. O. I. Snapp (September 12): Heavy infestation developed in Fort Valley during the last 2 weeks, causing considerable foliage injury in several pecan groves.

T. L. Bissell (September 21): Moderate infestation at Milner and Zebulon on September 17, but no defoliation seen. Moderate-to-severe infestations at Fort Valley and Americus on September 18, with defoliation beginning where proper treatment had not been given.

A BOSTRICHID (Xylobiops basillare Say)

Oklahoma. C. F. Stiles (September 27): Reported as doing considerable damage to pecan in Sequoyah County.

CITRUS

WOOLLY WHITEFLY (Aleurothrixus howardi Quaint.)

Florida. M. R. Osburn (September 17): Heavily infesting a few orange trees west of Fort Pierce.

GREEN CITRUS APHID (Aphis spiraccola Patch)

Florida. H. T. Fernald (September 18): Very abundant in some localities of Orange County and doing considerable damage to tip leaves of new orange-tree growth.

CITRUS WHITEFLY (Dialeurodes citri Ashm.)

Alabama. J. M. Robinson (September 18): Adults very abundant for 3 weeks on foliage of Japanese privet at Auburn. (September 20): Fall generation adults very abundant in parts of Orange County, owing to lack of fungus which usually checks them.

SCALE INSECTS (Coccidae)

Florida. M. R. Osburn (September 17): Chrysomphalus aonidum L. reproducing rapidly in Fort Pierce area and some citrus trees are becoming heavily infested.

Louisiana. I. J. Becnel (September 28): Population of Chrysomphalus dictyospermi Mord. has increased since the spring and infestations are general throughout lower Plaquemines Parish. Treated trees are relatively free of this scale. It has not reestablished itself in trees defoliated by the cold weather of last winter.

California. R. S. Woglum (September): Heavy increase of Aonidiella aurantii Mask. in all districts. Branches carry a heavy population in many orchards. Rapidly moving out from wood onto the fruit. Weather this summer has been favorable for development of Saissetia oleae Bern. Mortality has been light and in the double-brooded areas toward the coast it is already out of control in most orchards. Lepidosaphes beckii Newm. continued hatching during August, which is very unusual.

CITRUS RUST MITE (Phyllocoptes oleivorus Ashm.)

Florida. M. R. Osburn (September 17): Infestations on the increase again in citrus groves near Fort Pierce following a period of low infestation during summer months.

Louisiana. I. J. Becnel (September 28): Fruit in untreated groves in Plaquemine Parish showing signs of injury.

A CITRUS MITE (Anychus clarki McG.)

Texas. P. T. Rihard (August 22): Collected from citrus leaves at Weslaco on August 17. (Det. by E. A. McGregor.)

FIG

BLASTOPHAGA (Blastophaga psenes L.)

California. P. Simmons (September 19): Internal rot or endosepsis more serious in Calimyrna figs than for several years, a disease which is spread by Blastophaga from infected caprifigs.

DRIED FRUIT BEETLE (Carpophilus hemipterus L.)

California. D. F. Barnes (September 19): Spoilage of Adriatic figs in Fresno County from infestation by the dried fruit beetle and from souring is more serious than for several years, as indicated by midharvest trapping, fig examinations, and general observations.

MEALYBUGS (Pseudococcus spp.)

Mississippi. C. Lyle and assistants (September 25): Received from Harrison County, where they were feeding on a "paradise plant." Reported as very abundant on fig in the Gulfport district.

TRUCK - CROP INSECTS

STRIPED CUCUMBER BEETLE (Diabrotica vittata F.)

Wisconsin. E. L. Chambers (September 26): Unusually severe on cucumbers and apparently responsible for spread and development of an unusually large amount of mosaic.

Alabama. J. M. Robinson (September 7): Reported as attacking watermelons at Notasulga.

Mississippi. C. Lyle (September 25): Specimens received from Holmes County where they were feeding on gourd. Light infestations noted on squash in Harrison County and on late beans in the Meridian district.

Louisiana. C. O. Eddy (September 29): Occurred in large numbers, in spots, during the month.

BANDED CUCUMBER BEETLE (Diabrotica balteata Lec.)

Louisiana. C. O. Eddy (September 28): Exceedingly rare, only about a dozen specimens having been observed.

BLISTER BEETLES (Meloidae)

Ohio. E. W. Mendenhall (September 10): Epicauta pennsylvanica Deg. is doing some damage to gladiolus blooms in Lake County and to plantations in northern Ohio.

Virginia. H. G. Walker and L. D. Anderson (September 25): On tomatoes and other crops in August and early in September at Norfolk.

South Carolina. W. M. Upholt (September 19): E. marginata F. abundant in late tomatoes this week.

Tennessee. G. M. Bentley (September 25): E. vittata F. occurred in large numbers throughout the State on Irish potatoes and several of the leguminous forage crops.

Mississippi. C. Lyle (September 25): Blister beetles reported as numerous in George, Green, and Jackson Counties. E. lorniscata F. reported as abundant in Grenada, Tate, and Yalobusha Counties; also in the Meridian district, where tomatoes were injured, and in the northeastern counties where they came to lights at night.

L. Bridges (August 27): E. marginata damage to sweetpotatoes light. Tomatoes in some gardens are entirely stripped of foliage and even fruit. Damage occurred in Marion and Walthall Counties.

FLEA BEETLES (Halticinae)

Florida. J. R. Watson (September 23): Phyllotreta vittata F. doing severe damage in parts of Bradford County.

Mississippi. C. Lyle and Assistants (September 25): Specimens of P. vittata discedens Weise were collected on turnips in Holmes County. Reported as injuring turnips in Rankin County. Few specimens of Epitrix parvula F. and E. fuscata Crotch recently taken from eggplant in Leflore County.

SOUTHERN MOLE CRICKET (Scapteriscus acletus R. & H.)

Florida. J. R. Watson (September 23): Reported as damaging truck crops in general, especially strawberries.

POTATO AND TOMATO

CORN EAR WORM (Heliothis armigera F.)

Virginia. H. G. Walker and L. D. Anderson (September 24): Damaging small field of tomatoes near Norfolk.

South Carolina. F. Sherman and W. C. Nettles (September 24): Damaging late tomatoes in Spartanburg County.

Georgia. T. L. Bissell (September 19): Damaging dahlia buds and open flowers. Experiment.

Mississippi. C. Lyle (September 25): Specimens in cotton received from Copiah County the latter part of August. Reported as injuring tomatoes in the Meridian district and in Madison and Pike Counties, corn in the Durant area, and gladiolus plants in Jackson County.

Nevada. G. G. Schweis (September 18): Considerably damaged sweet corn and tomatoes late in growing season.

California. A. E. Michelbacher (September 24): Very destructive on tomatoes in parts of central California.

POTATO TUBER WORM (Gnorinoschema operculella Zell.)

Nebraska. H. D. Tate (August 31): Collected from potatoes near Lincoln. (Det. by C. Heinrich.)

TOMATO PINWORM (Keiferia lycopersicella Busck)

California. A. E. Michelbacher (September 24): Serious infestation occurred in a greenhouse near San Leandro. Reporter believes this is the first time it has been found in destructive numbers in the San Francisco Bay area.

POTATO FLEA BEETLES (Epitrix spp.)

Washington. E. W. Jones (September 16): Second-generation adults of E. cucumeris Harr. emerged first week in September in Kittitas Valley. Untreated fields averaged 27 adults per potato plant and leaves were severely eaten. Tubers in the same fields were heavily damaged, containing around 100 tunnels per tuber.

L. G. Smith (September 5): E. subcrinita Lec. observed in potatoes from Pullman, Whitman County, with considerable tunneling by larvae. Channels very shallow in contrast to those in other districts.

POTATO LEAFHOPPER (Empoasca fabae Harr.)

Minnesota. D. A. Peet (September 11): Very abundant in Clay County.

A MITE, (Phyllocoptes sp.)

California. A. E. Michelbacher (September 24): Found doing considerable damage to tomato near Tracy. Reported as being destructive to tomatoes near Sacramento. (A new mite to be described soon.)

BEANS

MEXICAN BEAN BEETLE (Epilachna varivestis Muls.)

New York. N. Y. State Coll. Agr. News Letter (September 3): Larvae of the second brood growing rapidly in Suffolk County.

Virginia. H. G. Walker and L. D. Anderson (September 24): Heavy infestation developing on beans during first part of July. High percentage killed during the latter part of July, owing to weather conditions, and the beetles are still rather scarce in many of the beanfields at Norfolk.

South Carolina. F. Sherman and W. C. Nettles (September 24): Set back during midsummer heat but now recovering in numbers.

Mississippi. C. Lyle (September 25): Specimens were feeding on butter beans in Covington County the latter part of August. Reported from Jasper, Oktibbeha, and Smith Counties. Heavy damage to beans reported from the Grenada and Meridian districts and from the northeastern counties.

BEAN LEAF BEETLE (Cerotoma trifurcata Forst.)

Mississippi. C. Lyle (September 25): Causing injury to cowpeas in the Durant area, and reported on beans at State College and in Copiah County.

Louisiana. C. O. Eddy (September 28): Abundant in the trucking sections of South Louisiana.

COTTON-SQUARE BORER (Strymon melinus Hbn.)

Ohio. T. H. Parks (September 10): Larvae have been eating holes in bean pods and making them unfit for market. Rather abundant in Pike County.

GREEN STINKBUG (Acrosternum hilare Say)

Virginia. L. A. Hetrick (September 24): Specimens sent in from Mathews County in September, with report that they were injuring butter beans.

PEAS

PEA WEEVIL (Bruchus pisorum L.)

Correction.--Washington and Oregon. L. G. Smith (July 30): In the September 1, 1940, Bulletin, the first sentence on page 395 should read: "About 25 percent less dusting was necessary than last year."

Washington. L. G. Smith (September 11): Adults observed in great numbers seeking hibernation quarters on window and door screens of houses in Pullman, Whitman County, on September 7 and 8. Numbers of bluebirds were feeding on adults.

PEA APHID (Macrosiphum pisi Kltb.)

Utah. G. F. Knowlton (September 24): Destroyed a 1-acre test plot of fall canning peas at Deweyville and are destroying a field of similar-size at Fielding, both in Box Elder County. Ladybird beetle adults and larvae, also syrphid larvae, are moderately abundant in both patches.

PEA MOTH (Laspeyresia nigricana Steph.)

Maine. J. H. Hawkins (September 1): Sent from Arrostook County. Injury to pea crop negligible. (Det. by C. Heinrich.)

LESSER CORNSTALK BORER (Elasmopalpus lignosellus Zell.)

Alabama. J. M. Robinson (August 26): Reported as attacking peas at Ozark.

SOUTHERN GREEN STINKBUG (Nezara viridula L.)

Mississippi. G. L. Bond (September 25): Damaging late peas and other truck crops in the southeastern counties.

CABBAGE

IMPORTED CABBAGE WORM (Pieris rapae L.)

Virginia. H. G. Walker and L. D. Anderson (September 24): Very scarce in the Norfolk area.

Wisconsin. E. L. Chambers (September 26): Seriously injured cabbage throughout southern Wisconsin.

CABBAGE WEBWORM (Hellula undalis F.)

South Carolina. F. Sherman and W. C. Nettles (September 24): Usually abundant throughout much of the State.

CABBAGE LOOPER (Autographa brassicae Riley)

Virginia. H. G. Walker and L. D. Anderson (September 24): Moderately abundant in some cabbage fields in the Norfolk area during the last 2 weeks, but bacterial disease has killed many.

DIAMONDBACK MOTH (Plutella maculipennis Curt.)

Virginia. H. G. Walker and L. D. Anderson (September 24): Rather scarce at Norfolk, and a rather high percentage of the larvae appear to be parasitized.

HARLEQUIN BUG (Murgantia histrionica Hahn)

South Carolina. F. Sherman and W. C. Nettles (September 24): Severely damaged a 4-acre planting of collards in Anderson County.

Mississippi. C. Lyle (September 25): Specimens collected on collards in Jones County, and reported as injuring collards and turnips in Bolivar and Rankin Counties, collards in Holmes and Simpson Counties and in the southwestern counties, and turnips in Holmes County and the Meridian district.

L. Bridges (August 27): Collards sapped so badly in Marion and Waltham Counties that the plants are dying.

APHIDS (Aphiidae)

Virginia. H. G. Walker and L. D. Anderson (September 24): Light infestation beginning to build up in a cabbage field near Oceana, Princess Anne County.

Nebraska. H. D. Tate (September 6): Heavily infested cabbage leaves received from Dawes County.

SQUASH

SQUASH BUG (Anasa tristis Deg.)

Maine. J. H. Hawkins (September 11): Sufficiently abundant to destroy the plants in many fields and gardens.

Wisconsin. E. L. Chambers (September 26): Unusually abundant throughout the State this fall, causing unusual damage, particularly to squash and pumpkin.

Iowa. H. E. Jaques (September): Moderate infestations reported from six counties in the southeastern part of the State and light infestations reported from Crawford and Cherokee Counties, in the western part of the State.

Nebraska. H. D. Tate (August 26): Request for control received from Dawson County.

Utah. G. F. Knowlton (August 28): Several reports received from Davis and Utah Counties.

Oregon. L. G. Smith (August 8): Plentiful on squash in Umatilla County.

SQUASH BORER (*Melittia satyriniformis* Hbn.)

New York. N. Y. State Coll. Agr. News Letter (September 3): Injury appearing on plantings, notably in those of the Hubbard variety. Light infestation.

BANDED CUCUMBER BEETLE (*Diabrotica balteata* Lec.)

Mississippi. T. F. McGehee (September 25): Large numbers injuring squash flowers in Harrison County.

MELONS

MELON APHID (*Aphis gossypii* Glov.)

Nebraska. H. D. Tate (August 29): Reported from Seward County.

Utah. G. F. Knowlton (August 28): Injuring cantaloups in Greenriver, Emery County, and in Weber County.

ASPARAGUS

ASPARAGUS BEETLE (*Crioceris asparagi* L.)

Utah. G. F. Knowlton (September 18): Beetles and larvae heavily attacking small asparagus patch at Logan.

TURNIP

TURNIP APHID (*Rhopalosiphum pseudobrassicæ* Davis)

California. E. A. McGregor (September): Myriads of winged aphids noticed about 8 a. m. on November 19, 1939, at Whittier. Between 8 and 10 a. m. they became increasingly abundant but almost disappeared during midday. Dispersion flight became very dense in late afternoon and climax was reached shortly before sunset, the estimated average interval between aphids being about 2 feet. Myriads of aphids encountered again 2 miles west of Pomona on December 1. Migration so dense as to impair visibility slightly, especially as aphids were intercepted on windshield. Similar migratory flights observed on one or two previous occasions in central California but these flights were early in the spring. No fall movement ever previously seen by reporter. (Det. by P. W. Mason.)

SWEETPOTATO

A LEPIDOPTERON (Bedellia minor Busck)

Louisiana. C. O. Eddy (September 28): Occurred on sweetpotatoes in large numbers in and around Baton Rouge this summer. (Det. by C. Heinrich.)

TORTOISE BEETLES (Cassidinae)

Mississippi. C. Lyle (September 25): Chelymorpha cassidea F. reported on sweetpotatoes in the Grenada district, and Metritona bivittata Say rather numerous on sweetpotato plants in the Jackson area and the Grenada district.

STRAWBERRY

SEED CORN BEETLE (Agonoderus lecontei Chaud.)

Nebraska. H. D. Tate (August 24): Adult specimens sent in on August 24 from Cheyenne County. Reported as causing damage to strawberries.

COMMON RED SPIDER (Tetranychus telarius L.)

Ohio. E. W. Mendenhall (September 11): Found causing some damage on plants in strawberry plantations in Lake County.

BEETS

BEET LEAFHOPPER (Eutettix tenellus Bak.)

Ohio. G. F. Knowlton (September 18): Severe in many northern sugar beet fields, although some fields appear to be nearly up to average of other years. (September 25): Reported as causing severe damage in a number of sugar beet fields in the Garland-Riverside area.

BEAN APHID (Aphis rumicis L.)

Michigan. R. Hutson (September 23): Reported on a sugar beet from Akron.

TOBACCO

TOBACCO FLEA BEETLE (Epitrix parvula F.)

Tennessee. L. B. Scott (September 19): Caused practically no damage to tobacco in north-central Tennessee.

HORNWORMS (Protoparce spp.)

Tennessee. L. B. Scott (September 19): More abundant on tobacco late in August and in September than in June, July, and early in August, when they were very scarce, but infestation was less than normal in north-central Tennessee. Apanteles congregatus Say unusually abundant on larvae, more than 50 percent of the larvae feeding on dark fire-cured tobacco showing signs of attack. Even higher percentage of parasitization on larvae feeding on burley tobacco.

COTTON INSECTS

BOLL WEEVIL (Anthonomus grandis Boh.)

South Carolina. F. F. Bondy, et al. (August 24): Few in Florence County and multiplying fast. Total of 66 caught on 4 flight-screen traps during week, making a total of 141 so far this month. Total of 806 caught in August 1939, as compared to 707 in August 1938. (August 31): Total of 15 caught on 4 flight traps during week, making a total of 186 weevils for August, as compared to 806 for the same period in 1939 and 707 in 1938.

Georgia. R. T. Harwell (August 23): Squares so scarce in Berrien and Cook Counties that accurate infestation counts are practically impossible. Boll damage considerably heavier than last week.

P. M. Gilmer, et al. (September 1): Large numbers in all untreated sea-island fields in Tift, Cook, Berrien, Lowndes, and Echols Counties. Movement from short cotton almost complete, comparatively few weevils being found in upland fields. Lack of control measures because of weather conditions caused serious middle-crop damage in some fields. Migrating brood much lighter than that of last year, probably a little lighter than a normal brood, but very large considering the exceedingly light hibernating brood survival. Still entering fields in considerably reduced numbers, the peak of migration apparently having occurred from about August 15 to 20. Sea-island cotton, where treated, has lost the larger part of the top crop set before August 20, and in the worst hit fields a part of the middle crop.

P. M. Gilmer, et al. (September 21): There will be a rather light hibernating brood, as compared with the preceding 2 or 3 years. Fall migration is well under way.

Florida. C. S. Rude, et al. (August 31): Thirty-five percent infestation, as compared to 32 percent a week ago. Large number of young bolls in many fields that will mature if they are protected from the weevil. In Union County 3 fields examined were all infested from 46.6 to 72 percent; in Alachua County 16 fields examined were all infested from 1 to 97.4 percent; in Gilchrist County all of 10 fields examined were infested from 1.2 to 27 percent; and in Marion County all of 12 fields examined were infested from 2.4 to 32 percent, 7 of the fields having too few squares to make infestation counts.

Mississippi. C. Lyle (September 25): Generally abundant over the State and puncturing squares of all cotton that is still fruiting, especially in the central and northern parts.

R. L. McGarr, et al. (September 7): High infestation noted in all cotton examined this week in Oktibbeha and Lowndes Counties. Apparently about as abundant now as at this time last year, when they were unusual plentiful. Big increase in infestation occurred late in the season this year, whereas in 1939 it occurred rather early in the season.

E. W. Dunnam, et al. (September 7): In 1 field of young cotton on the Experiment Station at Stonoville, Washington County, 100 squares were inspected and an infestation of 12 percent found. Interfield movement is still taking place. Fully 90 percent emerging from squares in late cotton. Early planted cotton now has a few grubs in top bolls, none of which have pupated. Most top bolls are clean. (September 28): Normal emergence. Bolls examined indicated that 10 percent were infested, or around 2 percent of the locks in top bolls.

Louisiana. R. C. Gaines, et al. (September 7): Observations in Madison Parish indicate that damage will be heavy. Weevils taken on field-flight screens for week ended September 6 totaled 100, as compared with 82 in 1939, and 366 in 1938. (September 21): For week ended September 22 the weevils taken on field-flight screens in Madison Parish totaled 22, as compared with 115 in 1939 and 283 in 1938.

Oklahoma. C. F. Stiles (September 27): Only extreme southeastern counties suffered any marked damage; unusually dry weather in that section since August 15.

Texas. K. P. Ewing, et al. (August 31): Serious damage caused in McLennan County. Reported as causing injury to small and half-grown bolls. (September 21): Infestation continuing in abundance in fields containing squares.

Correction.--In the September 1, 1940 Bulletin, the note at the bottom of page 370 should read: "Boll weevil damage, although abnormally light except in Texas * * *."

PINK BOLLWORM (Pectinophora gossypiella Saund.)

Texas. R. E. McDonald (September 3): Only 1 larva found on August 29 at the gin outside of area under quarantine at Davis Switch, in Atascosa County. (Det. by H. W. Capps.) During week ended August 28, 142 specimens were taken from gin at El Indio, in Maverick County, only a few specimens having previously been taken at that point. On August 29, 5 were taken from trash collected at the gin in Millet, La Salle County, the first ones found in this county this year. One found in Brooks County, also the first of the year.

A. J. Chapman (August 24): Average percentage boll infestation for 15 fields in Presidio County was 2.1 percent, averaging 7.3 bolls per plant, as compared to 4.4 percent last year, with an average of 6.4 bolls per plant. (August 31): Average green boll infestation in 31 fields distributed throughout Rio Grande Valley, Presidio County, during the latter half of August was 2.71 percent, with an average of 6.4 bolls per plant. Infestation in individual fields ranged from 0 to 20 percent. Heaviest infestation located in Candelaria area. Average infestation in 22 identical fields was 3.55 percent, with 6.7 bolls per plant, as compared to 4.91 percent with 6.0 bolls per plant in 1939. Fields located in heavily flooded area on May 8 show a lower infestation than those not affected by rain and hail. (September 7): Infestation counts made in 14 fields located in

the vicinity of Presidio, Presidio County, showed that the average percentage of bolls infested was 12.21, with an average of 5.0 bolls per plant and 15,710 larvae per acre. Percentage infestation in individual fields ranged from 0 to 53 percent, and larval population ranged from 0 to 102,935 larvae per acre. Boll records indicate that the infestation in the vicinity of Presidio is about the same as last year. (September 14): Green boll infestation counts made in 31 fields distributed throughout the Presidio Valley during the period September 1 to 14, inclusive. Average infestation was 7.93 percent, with an average of 5.29 bolls per plant and 9,155 larvae per acre. Infestation in individual fields ranged from 0 to 53 percent, the larval population ranging from 0 to 102,935. (September 21): Counts made in 14 fields located in the vicinity of Presidio, 13 of which were recorded in 1939. Average infestation in 1940 was 37.46 percent, ranging from 1 to 100 percent, with an average of 3.80 bolls per plant, ranging from 2.1 to 7.0, and an average of 48,133 larvae per acre, ranging from 298 to 265,010. In 1939 the average infestation was 42.83 percent, ranging from 5 to 95 percent, with an average of 2.08 bolls per plant, ranging from 0.6 to 4.4 and an average of 26,574 larvae per acre ranging from 314 to 71,381.

BOLLWORM (Heliothis armigera Hbn.)

Georgia. P. M. Gilmer, et al. (September 1): Rather severe damage noted in many fields in Tift, Cook, Berrien, Lowndes, and Echols Counties. Less severe than last year, but considerably above that of an average year. (September 21): Damage is about at an end. Somewhat serious in some sea-island fields, but much less than that of last year.

Florida. C. S. Rude (September 7): Still numerous in many cottonfields.

Alabama. J. M. Robinson (August 21): Reported as being present on cotton at Monroeville and Auburn.

Mississippi. R. L. McGarr, et al. (August 31): Noted as still doing a little damage in cotton examined in Oktibbeha County.

E. W. Dunnam, et al. (September 7): Two serious infestations reported near Clarksdale.

Texas. F. L. Thomas (August 27): Spotted injury throughout State, in bottomlands only, having destroyed both squares and bolls for several weeks in some of the river and creek bottoms.

A. J. Chapman (August 24): Very few larvae found in fields in Presidio County. Insect caused considerable losses in cotton that was replanted following hail and rain on May 8. Most severe damage was in fields where cotton was rank and succulent.

Arizona. W. A. Stevenson (August 31): Investigation made of recent outbreak in several fields of long-staple cotton near Eloy, Pinal County. Considerable damage especially on squares. Few larvae and eggs could be found. Egg parasites had recently been released in affected sections.

COTTON LEAF WORM (Alabama argillacea Hbn.)

Georgia. T. L. Bissell (September 10): Reported as appearing on cotton at Carnegie, southwestern Georgia. No damage.

O. I. Snapp (September 21): More abundant than for 4 or 5 years, appearing later than usual around Fort Valley. Cotton plants have been defoliated in some fields.

P. M. Gilmer, et al. (September 1): Sporadic infestations noted in Tift, Cook, Berrien, Lowndes, and Echols Counties. Some ragging but no stripping. Less generally distributed than average for this date. (September 21): Considerable ragging and some stripping noticeable in some untreated fields.

Florida. C. S. Rude (August 31): Serious in fields near Ocala and Anthony, Marion County. A great many first-instar larvae in these fields.

ennessee. G. M. Bentley (September 25): No trace of insect revealed, which is unusual, as in some years scarcely a cottonfield escapes without attack.

Mississippi. C. Lyle (September 25): Reported as present in Coahoma and Waltham Counties and doing a small amount of damage in the southeastern part of the State.

R. L. McGarr, et al. (August 31): Larvae observed for first time in Oktibbeha County on August 26.

E. W. Dunnam and J. C. Clark. (September 28): One full-grown larva found in cotton at Stoneville on September 22. Heavy infestation found on same date at Anguilla in Sharkey County. Heavy ragging on about 1 acre.

Louisiana. R. C. Gaines, et al. (September 21): Few have been observed in young cotton in Madison Parish.

I. J. Bechel (September 28): Very heavy infestations throughout the Red River parishes. Cotton completely defoliated in most fields in northwestern Louisiana.

Texas. F. L. Thomas (August 27): Less injurious than for many years in central and eastern Texas.

K. P. Ewing, et al. (September 7): Scattered worms may be found in fields of comparatively rank cotton in McLennan County.

A. J. Chapman (September 14): Second generation hatched and larvae are defoliating the cotton in a good many of the fields in Presidio County.

APHIDS (Aphididae)

Georgia. P. M. Gilmer, et al. (September 1): Very heavy infestation in most well-treated fields of sea-island cotton in Tift, Cook, Berrien, Lowndes and Echols Counties. Untreated cotton averages light infestations in most fields. (September 14): Again increasing in numbers especially in very late-treated sea-island fields. (September 21): Present in diminishing numbers, a few fields having enough to cause some lint damage from honeydew.

Mississippi. C. Lyle (September 25): Aphis gossypii Glov. infestations reported from the Meridian and Durant districts.

R. L. McGarr, et al. (August 31): Aphids very numerous in many of the plots of the field-plot control cuts in Oktibbeha County.

E. W. Dunnam, et al. (August 31): Slight increase of small yellow aphid forms on untreated cotton in Washington County. Population increased about four times during the week. Large forms noted in one case at Stopville. (September 28): Aphids decreasing.

Louisiana. I. J. Becnel (September 28): Infestations very severe on treated blocks at University. Sooty mold is causing considerable discoloration of lint.

R. C. Gaines, et al. (September 7): Observations during week in Madison Parish indicate that infestation is heavy in most plots treated for boll weevil but which had not received treatment for aphid. (September 21): Infestations still heavy in some fields in Madison Parish that were treated for boll weevil control.

Texas. K. P. Ewing, et al. (September 14): More abundant at present in McLennan County than observed since cotton was very small. Very abundant and causing considerable honeydew in the treated plots in three experiments at Mexia.

A PENTATOMID (Chlorochroa ligata Say)

Texas. A. J. Chapman (August 10): Abundant enough in Presidio County to cause damage. Spotted infestation but in certain fields the resulting damage was severe. (August 24): Abundant in most of the fields in Presidio County, causing considerable damage. (September 14): Have just about disappeared in Presidio County, only an occasional adult having been found during last week.

COTTON FLEA HOPPER (Psallus seriatus Reut.)

Oklahoma. C. F. Stiles (September 16): Doing some damage to late squares in Grady County.

Texas. F. L. Thomas (August 27): Less injurious than for many years in central and eastern Texas. Caused only slight damage.

COTTON LEAF PERFORATOR (Bucculatrix thurberiella Busck)

Arizona. W. A. Stevenson (September 17): More prevalent than in many years in the Marana section of Pima County, but it is doubtful whether any commercial damage has occurred, as cotton in affected fields is practically mature.

RED SPIDERS (Tetranychus spp.)

Mississippi. E. W. Dunnam, et al. (September 21): Many small infestations found in Washington County. No complaints received.

Louisiana. R. C. Gaines, et al. (September 21): Present in most cottonfields in Madison Parish.

WHITEFLIES (Aleurodidae)

South Carolina. F. F. Bondy, et al. (August 31): Few whiteflies in the cotton in Florence County.

F O R E S T A N D S H A D E - T R E E I N S E C T S

FALL WEBWORM (Hyphantria cunea Drury)

Virginia. L. A. Hetrick and A. M. Woodside (September 13): Common on both persimmon and sorrel tree, or sourwood, in the southern part of the State from Norfolk west to Danville and north to West Point and Lynchburg.

North Carolina. O. I. Snapp (September 3): Unusually heavy infestation on persimmon observed in vicinity of Walnut Cove, northwestern part of State.

South Carolina. F. Sherman and W. C. Nettles (September 24): Abundant as usual on pecan and persimmon, the latter being its chief wild host.

Mississippi. C. Lyle (September 25): Continued heavy infestations reported from over practically all the northern two-thirds of the State.

Michigan. R. Hutson (September 23): Normally abundant throughout central part of Lower Peninsula.

Ohio. E. W. Mendenhall (September 11): Very noticeable along drives and roadsides, especially in the northern counties along Lake Erie. Attack various trees, being found especially on wild cherry, willow, and mulberry.

SPRING CANKERWORM (Paleacrita vernata Peck)

Illinois. W. P. Flint (September 25): Recent examinations of overwintered pupae in the soil indicate that most of them are apparently healthy and that they are numerous enough to constitute a threat for a serious outbreak next spring.

SADDLED PROMINENT (Heterocampa guttivitta Walk.)

New Hampshire. T. J. Parr (August 23): Moderate-to-heavy feeding noted in mixed hardwood stands at Wonalancet. Only diseased larvae found.

PALE TUSSOCK MOTH (Halisidota tessellaris A. & S.)

Connecticut. J. V. Schaffner, Jr. Larvae unusually common in many localities in New Haven County.

BAGWORM (Thyridopteryx ephemeraeformis Haw.)

Maryland. E. N. Cory (September 23): Generally present on evergreens.

Virginia. H. G. Walker and L. D. Anderson (September 24): Abundant in Northern area during July and August, defoliating some trees.

L. A. Hetrick (September 14): Specimens sent in from King and Queen County with report that they had defoliated an ornamental arborvitae.

South Carolina. F. Sherman and W. C. Nettles (September 24): Occasional complaints received.

Alabama. J. M. Robinson (August 30): Reported as attacking cedar trees at Jasper.

Mississippi. C. Lyle (September 25): Specimens received from Chickasaw County and reports of injury from Newton County and the Meridian district.

Ohio. E. W. Mendenhall (September 21): Very serious on evergreen and deciduous trees in Newark, Licking County.

TWO-MARKED TREE HOPPER (Enchenopa binotata Say)

New Jersey. E. P. Felt (September 24): Egg masses abundant on Hophornbeam near Orange, N. J.

A COCCID (Aspidiotus osborni Newm. & Ckll.)

Delaware. R. M. Conwell (September): Attacking twigs of holly at Milton. (Det. by H. Morrison.)

Wisconsin. E. L. Chambers (September 26): Oak scale observed on row of pine trees in a nursery, the trees having been shipped in from out-of-State nurseries where they were grown. (Det. by H. Morrison.)

EUROPEAN FRUIT LECANIUM (Lecanium corni Bouche)

New York. R. E. Horsey (September 23): Numerous on tupelo trees, 35 feet tall and branched to the ground, in an ornamental planting at Rochester; edges of small leaves curling.

WALKINGSTICKS (Phasnidæ)

Wisconsin. E. L. Chambers (September 26): Diapheromera femorata Say caused serious damage to raspberry plantings, plum, and apple trees, as well as birch, poplar, and oak, in an area some 6 miles square, according to observations on September 20. Forest trees pretty well stripped throughout the area and raspberry patches practically defoliated, defoliation being most severe where patches were close to woodlots. From 12 to 15 found on a single bush.

Missouri. L. Haseman (September 24): Heavier feeding by walkingsticks than usual on foliage of oak and various other shade, forest, and fruit trees throughout central Missouri. Many trees and shrubs almost defoliated. Still feeding and mating today.

ASH

AN APHID (Prociphilus fraxinifolii Riley)

Utah. G. F. Knowlton (August 30): Seriously rolled leaves of ash trees at Lehi.

BIRCH

BRONZED BIRCH BORER (Agrilus anxius Gory)

Ohio. E. W. Mendenhall (September 18): Severe damage in Lake and Cuyahoga Counties, in northeastern Ohio. (September 21): Seriously damaging birch trees at Columbus.

BIRCH SKELETONIZER (Bucculatrix canadensisella Chamb.)

New York. R. E. Horsey (September 24): Great number noticed on large river birch in an ornamental planting in Rochester. Leaves badly skeletonized, the worst infestation seen in years by the writer.

BIRCH LEAF MINER (Fenusa pusilla Lep.)

Rhode Island. B. Eddy (September 24): Very heavy this year.

AN APHID (Luceraphis betulæ Koch)

New York. M. D. Leonard (September 25): Number of birch trees on New York World's Fair Grounds at Flushing have shown a fair infestation during the month.

BOXELDER

BOXELDER BUG (Leptocoris trivittatus Say)

Michigan. R. Hutson (September 23): Common at Flat Rock and Ypsilanti.

Wisconsin. E. L. Chambers (September 26): Reported as very abundant in the southern part of the State and also in Clark, La Crosse, and Trempealeau Counties.

Alabama. J. M. Robinson (September 2): Reported as attacking a maple tree at Boaz.

CATALPA

CATALPA SPHINX (Ceratomia catalpae Bdv.)

Oklahoma. F. A. Fenton (September 28): Outbreak in and around Tulsa, causing defoliation of many trees. Caterpillars are apparently heavily parasitized.

ELM

ELM LEAF BEETLE (Galerucella xanthomelaena Schr.)

Rhode Island. B. Eddy (September 24): Very heavy but controlled where treatment was used.

Utah. G. F. Knowlton (September 18): Seriously attacking large elms at Smith field.

Washington. L. G. Smith (August 19): Reported as being very common on elm trees in Yakima County.

LARGER ELM LEAF BEETLE (Monocesta coryli Say)

Georgia. O. I. Snapp (July 25): Very abundant on elm trees at Montezuma in southern Georgia. Also observed at Fort Valley, central Georgia, several weeks later. (Det. by H. S. Barber.)

Mississippi. M. L. Grimes (September 25): Larvae and adults feeding on elm in Lauderdale and Newton Counties early in September. First record of species in Mississippi since 1895.

MOURNING-CLOAK BUTTERFLY (Hamadryas antiopa L.)

Utah. G. F. Knowlton (August 28): Larvae stripped foliage from some Siberian elm trees at Salt Lake City, Provo, Farmington, and Logan.

AN APHID (Tuberculatus ulnifolii Monell)

New York. M. D. Leonard (September 25): Infestation of elm trees increasing at the World's Fair Grounds at Flushing. Infestation not noticeable until about September 1, and now there is quite a population and much honeydew evident on many trees. Some two-spotted ladybird beetles present.

EUROPEAN ELM SCALE (Gossyparia spuria Mod.)

Wisconsin. E. L. Chambers (September 26): Still restricted to a few cities; now found in Fond du Lac.

Nebraska. H. D. Tate (August 17): Heavy infestations observed on elm trees at
Kinball. Specimens received on August 17.

Utah. G. F. Knowlton (August 28): Injury observed on several shade elms at
Salt Lake City.

HACKBERRY

HACKBERRY NIPPLE GALL (Pachypsylla celtidis-nanna Riley)

Wisconsin. E. L. Chambers (September 23): Adults reported causing considerable
nuisance by overrunning hedges near infested trees in Sparta.

LINDEN

AN APHID (Myzocallis tiliae L.)

New York. M. D. Leonard (September 25): Several linden trees on World's Fair
Grounds at Flushing have recently developed a considerable infestation.

LOCUST

LOCUST LEAF MINER (Chalopus corsalis Thunb.)

Massachusetts. A. I. Bourne (September 24): Moderate injury on locusts on
college campus at Amherst and in the nearby towns in the Connecticut
Valley. Beetles started to emerge on August 22.

E. P. Felt (September 24): Abundant on oak foliage near Cambridge and
also at Greenfield.

Rhode Island. E. Eddy (September 24): Very heavy this year.

Tennessee. G. M. Bentley (September 25): Highly skeletonized leaves of locust.
Generally distributed throughout eastern counties.

SILVER-SPOTTED SKIPPER (Proteides clarus Cram.)

Connecticut. A. De Caprio (September 10): Several small black locust trees al-
most entirely stripped at Granby.

LOCUST TWIG BORER (Ecdytolopha insiticiosa Zell.)

Michigan. R. Hutson (September 23): Working in twigs of black locust.

Georgia. T. L. Bissell (September 21): Black locust twigs at Experiment common;
infested on September 2.

MAPLE

GREEN-STRIPED MAPLE WORM (Anisota rubicunda F.)

Vermont. H. L. Bailey (August 30): Sugar-maple orchard of approximately 300 trees practically defoliated at Newark, Caledonia County, northwestern Vermont. Feeding less noticeable in surrounding country. Larvae crawling on trunks of trees but feeding practically over on August 29. (September 28): Very abundant at Newark. One sugar-maple orchard nearly defoliated; 50-percent defoliation noted elsewhere in vicinity.

A CERAMBYCID (Anthoboscus ruricola Oliv.)

Massachusetts. W. B. Becker (September 9): Larvae taken from a maple tree which was cut down recently on the campus of Mount Holyoke College at South Hadley. (Det. by W. H. Anderson.)

MOUNTAIN ASH

A SAWFLY (Pristiphora geniculata Htg.)

New Hampshire. T. J. Parr (September 10): From heavy defoliation to complete stripping of mountain ash noted in the Waterville Valley, Wonalancet, Bartlett, and Crawford Notch areas in the White Mountains of New Hampshire on August 20 to 31.

Vermont. T. J. Parr (September 10): Mountain ash defoliated, and in some cases completely stripped, in the Middlebury Gap area in the Green Mountains, Vermont on August 20 to 31. All larvae had spun cocoons.

OAK

ORANGE-STRIPED OAK WORM (Anisota senatoria A. & S.)

Vermont. H. L. Bailey (September 2): Larvae stripping white oak trees in Charlotte, Chittenden County, western Vermont.

TWIG PRUNER (Hypermallus villosus F.)

Massachusetts. A. I. Bourne (September 24): Damage throughout western part of State much lighter than normal. Seemed much more prevalent and more conspicuous in the eastern, and particularly the northeastern part of the State.

Michigan. R. Hutson (September 23): Reported as numerous at Alma.

A BORER (Agilus areuatus Say)

Wisconsin. E. L. Chambers (September 26): Considerably damaged oak trees throughout southern Wisconsin, clipping off many branches.

A LEAF MINER (Lithocolletis hamadryadella Glen.)

Connecticut. E. P. Felt. (September 24): Somewhat abundant and injurious to white oak in southwestern Connecticut.

New York. E. P. Felt (September 24): Rather abundant and injurious to white oak in southeastern New York.

RED-HUMPED OAK CATERPILLAR (Symmerista albifrons A. & S.)

Connecticut. E. P. Felt (September 24): Unusually abundant and injurious in both Fairfield and Stamford.

GOLDEN OAK SCALE (Asterolecanium variolosum Ratz.)

New Jersey. E. P. Felt (September 24): Abundant on oak at Orange.

Wisconsin. E. L. Chambers (September 26): Abundant on native oak growing in village of Whitefish Bay. Has been becoming more severe in the last few years.

PINE

EUROPEAN PINE SHOOT MOTH (Rhyacionia buoliana Schiff.)

New York. E. P. Felt (September 24): Somewhat injurious at Scarsdale.

Ohio. E. W. Mendenhall (September 21): Very abundant in northeastern Ohio and found on Scotch pine and some other pines in Lake County.

NANTUCKET PINE SHOOT MOTH (Rhyacionia frustrana Const.)

Massachusetts. W. B. Becker (August 9): Infesting pine tips sent from Harwichport. (Det. by C. Heinrich.)

Mississippi. C. Lyle (September 25): Larvae received and thought to be this species from Coahoma County, where they were causing injury to pine tips.

PITCH-MASS BORER (Parharmonia pini Kellicott)

New York. J. V. Schaffner, Jr. (September 13): Injury common in some plantations of Scotch pine in Saratoga County.

RED-HEADED PINE SAWFLY (Neodiprion lecontei Fitch)

New York. J. V. Schaffner, Jr. (September 23): Reported as being locally abundant in pine plantations in the vicinity of Bloeker, Canton, and Tupper Lake.

Maryland. E. N. Cory (September 17): Present on white pine at Hagerstown.

Virginia. L. A. Hetrick (September 14): Second-generation larvae feeding on ornamental doedar in Mathews and James City Counties.

PINE NEEDLE SCALE (Chionaspis pinifoliae Fitch)

Nebraska. H. D. Tate (September 11): Infested evergreen twig received from Furnas County.

POPLAR

COTTONWOOD BORER (Plectrodera scalator F.)

Nebraska. H. D. Tate (August 31): Specimen sent in from Douglas County.

SERVICEBERRY

LACEDUGS (Tingidae)

Utch. G. F. Knowlton (August 28): Observed on foliage of serviceberry in Uinta Canyon.

SPRUCE

EUROPEAN SPRUCE SAWFLY (Gilpinia polytoma Htg.)

Vermont. H. L. Bailey (September 28): Infestation greatly reduced in intensity. Very few larvae or cocoons found during September, even in Wilmington area, where much defoliation occurred in 1938-39.

EASTERN SPRUCE BEETLE (Dendroctonus piceaperda Hopk.)

New Hampshire and Vermont. T. J. Parr (September 24): Increased infestation of spruce trees in the vicinity of Crawford Notch, N. H., and on a permanent sample strip in Dattell Park, near Middlebury Gap, Vt.

A SCALE (Chrysomphalus sp.)

Pennsylvania. J. F. Sleesman (September 21): Found heavily infesting a species of blue spruce in a nursery at West Chester.

WALNUT

WALNUT CATERPILLAR (Datana integerrima G. & R.)

New Jersey. A. E. Lantz (August 15): Causing heavy defoliation of butternut from Allentown to Easton and Bangor.

Ohio. E. W. Mendenhall (September 23): Very abundant on walnut trees in Livingston County and central Ohio. Some trees nearly defoliated.

Wisconsin. E. L. Chambers (September 26): Responsible for serious defoliation of walnut and hickory trees generally throughout the State.

Oklahoma. C. F. Stiles (September 27): Reported as doing some damage to pecan foliage in Oklahoma County.

BUTTERNUT CURCULIO (Conotrachelus juglandis Lec.)

New York. E. P. Felt (September 24): Found in small numbers on a heartnut at
Yonkers.

WILLOW

EUROPEAN WILLOW LEAF BEETLE (Plagiodera versicolora Laich.)

Vermont. H. L. Bailey (September 28): Moderately abundant at Montpelier and
vicinity, Washington County, central Vermont.

AN APHID (Chaitophorus viminalis Monell)

Utah. G. F. Knowlton (August 28): Willows at Heber and near Logan heavily in-
fested.

INSECTS AFFECTING GREENHOUSE
AND ORNAMENTAL PLANTS

CHINCH BUG (Blissus leucopterus insularis Barb.)

South Carolina. W. C. Nettles (September 10): Specimens located on Saint
Augustine grass and collected in Kingstree during first half of August.
(Det. by H. G. Barber.)

FURSLANE BUG (Geocoris bullatus Say)

Massachusetts. A. I. Bourne (September 11): Reported as present in considerable
numbers and causing serious injury to lawn in Worcester County. Specimens
received. (Det. by H. G. Barber.)

WHITEFLIES (Dialeurodes spp.)

Georgia. O. I. Snapp (September 20): Very abundant and causing considerable dam-
age to privet and ornamental shrubbery around homes in Fort Valley,
central Georgia.

TOMATO STILT BUG (Jalysus spinosus Say)

Virginia. C. A. Weigel (September 10): Present in August on snapdragon and weeds
at Culpeper. (Det. by H. G. Barber.)

A MEALYBUG (Phenacoccus artemisiae Ehrh.)

New York. A. Vothelin (August 28): Specimens taken from portulaca and aster
in New York City. (Det. by H. Morrison.)

OYSTERSHELL SCALE (Lepidosaphes ulmi L.)

- Ohio. E. W. Mendenhall (September 11): Very bad and causing some damage on pussy willow trees and lilac bushes in Lake County.
- Utah. G. F. Knowlton (August 28): Heavily attacking poplar and willow in several northern Utah localities.
- Washington. L. G. Smith (August 14): Reported as being very common on apple and pear trees in Kittitas County.

EUROPEAN FRUIT LECANIUM (Locanium corni Bouche)

- New York. R. E. Horsey (September 7): Found on a small Cercis canadensis tree at Rochester. Abundant on a few branches. (Det. by H. Morrison.)

COTTONY-CUSHION SCALE (Icerya purchasi Mask.)

- South Carolina. F. Sherman and W. C. Nettles (September 24): Infestation noted in Lexington County.
- Mississippi. C. Lyle (September 25): Very heavy infestation reported from Jackson County, with several lighter infestations in Jackson and Harrison Counties.

IO MOTH (Automeris io F.)

- Maryland. W. H. Youngman (September 28): Almost covered flowering almond buds at Takoma Park. (Det. by J. A. Hyslop.)

THRIPS (Thysanoptera)

- Mississippi. M. L. Grimes (September 25): Causing damage to rose and dahlia flowers in the Meridian district.

A PYRALIDID (Ulophora grotei Rag.)

- Alabama. F. S. Arant (September 9): Several larvae collected from seed pods of devil's-shoestrings. (Det. by C. Heinrich.)

AZALEA

AZALEA LACE BUG (Stephanitis pyrioides Scott)

- Maryland. E. N. Cory (September 12): Present on azalea at Baltimore.

AZALEA SCALE (Eriococcus azaleae Const.)

- North Carolina. C. S. Brinley (August 19): Specimens on twigs of azalea received from Fayetteville. (Det. by H. Morrison.)

CAMELLIA

A TORTRICID (Pseudaonidia paeoniae Ckll.)

Texas. J. U. Crockett (August 27): Specimens on twigs of Camellia japonica sent from Houston. (Det. by H. Morrison.)

CAMPHOR

CAMPHOR THRIPS (Liothrips floridensis Watson)

Mississippi. T. F. McGehee (September 25): Causing injury to camphor trees in the Gulfport area.

DAHLIA

SUNFLOWER WEEVIL (Rhodobaenus tredecimpunctatus Ill.)

Virginia. L. A. Hetrick (September 15): Larvae and pupae found in dahlia stems at West Point.

Wisconsin. E. L. Chambers (September 10): Severely damaging dahlias at Madison, the stalks being completely riddled just about time for the plants to come into full bloom. Specimens received. (Det. by L. L. Buchanan.)

DOGWOOD

A BEETLE (Oberea tripunctata Swed.)

Pennsylvania. A. Muller (August 26): Not a serious pest but rather abundant on flowering dogwood and on Cornus stolonifera and its varieties in some nurseries at Norristown.

DOGWOOD CLUB GALL (Mycodiplosis alternata Felt)

New England. E. P. Felt (September 24): Somewhat common in southern New England

New York. E. P. Felt (September 24): Rather common in southeastern New York.

EUONYMUS

EUONYMUS SCALE (Chionaspis euonymi Const.)

Maryland. E. M. Cory (September): Present in Baltimore County.

Virginia. H. G. Walker and L. D. Anderson (September 24): More abundant than usual in Norfolk area.

Alabama. J. M. Robinson (August 26): Reported as attacking evergreen trees in Alexander City.

Mississippi. C. Lyle (September 25): Specimens received from Coahoma, Madison, and Montgomery Counties. Heavy infestations reported in the Grenada and Meridian areas and in Sunflower County.

Texas. R. K. Fletcher (September 13): Causing severe injury to Euonymus japonicus in Tom Green County on September 13.

FIRETHORN

A LACEBUG (Corythucha cydoniae Fitch)

New Jersey. E. P. Felt (September 24): Abundant on hawthorn at Plainfield.

South Carolina. C. F. Rainwater (September 24): Specimens collected at Florence. Severely injuring Pyracantha. (Det. by H. G. Barber.)

Alabama. L. L. English (September 9): Specimens taken from Pyracantha formosa and P. lalandi. (Det. by H. G. Barber.)

Washington. E. J. Newcomer (September 13): Very abundant on quince at Zillah.

GLADIOLUS

GLADIOLUS THRIPS (Taeniothrips simplex Morison)

Connecticut. E. P. Felt (September 24): Injurious to gladioli at Bridgeport.

Ohio. E. W. Mendenhall (September 10): Quite bad in gladiolus plantations in Perry Township, Lake County.

Mississippi. M. L. Grimes (September 25): Light infestations observed in the Meridian district.

HOLLY

A SCALE INSECT (Asterolecanium sp.)

Delaware. R. M. Conwell (September 17): Specimens on twigs of holly. Seen on holly trees in various places for years. Affected limb generally dies. (Det. by H. Morrison.)

LILAC

LILAC BORER (Podbesia syringae Harr.)

Massachusetts. W. B. Becker (August 29): Specimen of larva found boring in the stem of a lilac plant. (Det. by C. Heinrich.)

Nebraska. H. D. Tate (September 16): Samples of infested wood from lilac bushes sent in from Perkins County.

MAGNOLIA

A SCALE (Toumeyella turgida Ckll.)

Mississippi. C. Lyle (September 25): Specimens on magnolia sent in from Leflor County.

OLEANDER

POLKA DOT WASP MOTH (Syntomeida epilais Walk.)

Florida. J. R. Watson (September 23): Has not reappeared in Gainesville section this fall.

OLEANDER SCALE (Aspidiotus hederæ Vallot)

Nebraska. H. D. Tate (September 9): Infested oleander leaves sent in from Dund County.

PRIVET

A BORER (Pyrausta gracilalis Hulst)

California. E. O. Essig (September 23): Very abundant on various kinds of privet hedges and grass lawns in middle and northern California. (Det. by H. E. Keifer.)

ROSE

ROSE CURCULIO (Rhynchites bicolor F.)

Utah. G. F. Knowlton (August 28): Injury severe in some gardens at Salt Lake, Springville, and Ogden.

RUSTY BROWN TORTRIX (Sparganothis flavedana Clem.)

Maryland. C. A. Weigel (August 7): Moth damaging rose in greenhouse at Glen Burnie. (Det. by J. F. G. Clarke.)

ROSE SCALE (Aulacaspis rosæ Bouche)

North Carolina. Mrs. C. E. Gregory (September 2): Specimens collected on rose at Morgantown. (Det. by H. Morrison.)

WATERLILY

WATERLILY APHID (Rhopalosiphum nymphaeae L.)

New York. M. D. Leonard (September 25): Appeared during last 3 weeks on water-lily plants on the World's Fair Grounds. Many pods and flower stalks considerably infested.

INSECTS ATTACKING MAN AND DOMESTIC ANIMALS

MAN

MOSQUITOES (Culicinae)

South Carolina. F. Sherman and W. C. Nettles (September 24): Reported as no numerous generally.

Florida. W. V. King (September 1): Heavy outbreaks of Aedes taeniorhynchus W reported in Dade, Brevard, and Sarasota Counties, and a moderate flight in St. Lucie County.

Tennessee. T. W. Simpson (July 3): Larvae of A. tormentor D. and K. collected from shallow temporary pool in a swamp near Walnut Log. New record for this uncommon species in this locality.

Kentucky. T. W. Simpson (September 2): Adult female of A. bimaculatus Coq. collected while biting in dense woodlands near Bondurant. New record in this locality.

Illinois. W. P. Flint (September 25): Severe outbreak of A. vexans Meig. in middle of September throughout central Illinois.

Missouri. L. Hoseman (September 25): Mosquitoes much less abundant in central Missouri.

Utah. G. F. Knowlton (September 18): A. dorsalis Meig. extremely abundant and annoying to man and livestock in Timpie-Dolonite-Flux area of Tooele County. (September 24): A. nigromaculis Ludl. causing annoyance on farm west of Logan, Cache County. A. dorsalis very annoying on farms west of Logan, Cache County.

A SANDFLY (Culicoides furens Poey)

Florida. J. B. Hull (September 1): Reported as almost completely absent at Fort Pierce and Saint Lucie during first part of August. Caused much annoyance to residents in these same localities after August 16, owing heavy rains.

CAT FLEA (Ctenocephalides felis Bouche)

Vermont. H. H. Stage (August 21): Reported as causing considerable disturbance to a family in Burlington. (Det. by I. Fox.)

Massachusetts. H. L. Trembley (August 14 and 16): Specimens submitted from infested houses in Salem and Peabody, where occupants were being bitten.

Illinois. H. H. Stage (August 18): Reported as biting humans in a residence in Chicago. (Det. by H. L. Trembley.)

BEDBUG (Cimex lectularius L.)

Ohio. T. H. Parks (September 14): Received from Greene County with statement that they were very abundant in a poultry house.

Nebraska. H. D. Tate (September 16): Reported from Richardson and Buffalo Counties on August 27 and September 3, respectively.

CHIGGER (Eutrombicula alfreddugesi Oud.)

Illinois. H. H. Stage (August 12): Reported as heavily infesting a wooded tract of land at Palatine.

TROPICAL RAT MITE (Liponyssus bacoti Hirst)

Oregon. E. F. Knipling (August 26): Reported as biting members of an office force in a Portland office building said to be infested with rats. (Det. by H. E. Ewing.)

A GNAT (Hippelates pallipes Loew)

Maryland. H. L. Trembley (September 8): Extremely numerous around dog's head and also annoying to human beings on Wicomico River.

DEERFLIES (Chrysops spp.)

New Hampshire. H. H. Stage (July 30): C. lateralis Wied. and C. vittata Wied. reported as severely biting human beings at Contoocook.

BROWN DOG TICK (Rhipicephalus sanguineus Latr.)

Nebraska. H. D. Tate (September 16): Specimens submitted from Douglas County. (Det. by F. C. Bishopp.)

Texas. D. C. Farnen (September 1): Noted on dogs at Uvalde.

Colorado. H. L. Trembley (August 29): Reported from Fort Collins.

AMERICAN DOG TICK (Dermacentor variabilis Say)

Massachusetts. C. N. Smith (September 6): Activity of adults declined sharply during month at Vineyard Haven, ticks entirely disappearing from many areas. Larval and nymphal abundance continued at a low level.

California. P. Simmons (September 14): Specimen, attached to his person, brought in by a resident of Fresno, who had attended circus on a lot on the outskirts of the city but had not been out of town. (Det. by F. C. Bishopp.)

BLACK WIDOW SPIDER (Latrodectus mactans F.)

Virginia. J. G. Frott (September 3): Overrunning gardens and woodpiles at Wakefield.

Nebraska. H. D. Tate (September 13): Specimen received from York County.

Utah. G. F. Knowlton (September 18): Several reports received from homes in northern Utah.

CATTLE

SCREWORM (*Cochliomyia americana* C. & P.)

Florida. W. E. Dove (September 23): Scarce in southern part of Florida.
(September 26): No cases reported from western Florida during month.

Oklahoma. C. F. Stiles (September 27): Reported as doing more damage in the Red River counties than in a number of years. Carter, Love, and Jefferson Counties most heavily infested.

W. G. Bruce (September 24): Numerous infestations reported in Jefferson County. More numerous than in 1935, when there was a general outbreak.

Texas. W. G. Bruce (September 24): Two cases in dehorned cattle on laboratory premises at Dallas.

D. C. Parman (September 1): Fly populations built up rapidly under influence of favorable weather conditions during June. During July and the first of August, population decreased rapidly, but maintained considerable reserve, which permitted a rapid build-up after rains began on August 14. Last trapping period, August 15 to 31, attended by an increase in fly population. Strong reserve at this time makes it imperative that special care be taken by ranchmen to prevent exposing wounds to attack.

E. C. Cushing (September 11): Abundant and active during first 10 days of month at Menard.

STABLEFLY (*Stomoxys calcitrans* L.)

Maryland. H. L. Trembley (September 23): Numerous and very annoying on Wicomico River.

South Carolina. R. G. Kuerzi (September 2): Sudden infestation reported at Myrtle Beach on August 31, which reached a peak on September 2. Decreased rapidly with appearance of barn and tree swallows.

Florida. W. E. Dove (September 24): Most prevalent along coast from Pensacola to Apalachicola. Some reports received from as far south as Carrabelle.

Texas. D. C. Parman (September 1): Not generally present at Uvalde until after recent rains.

W. G. Bruce (September 24): Fairly abundant on cattle at Waurika.

HORN FLY (Haematobia irritans L.)

Florida. W. E. Dove (September 26): Unusually abundant in dry areas of northwestern Florida, often about 2,000 on a single animal. About the same numbers found during latter part of month on herds along the east coast.

Oklahoma. W. G. Bruce (September 17): Heavy infestation on cattle near Waurika.

Texas. D. C. Parman (September 1): Not generally present last month at Uvalde until after recent rains, when an increase was noted, especially in the hills.

E. C. Cushing (September 3): Seventeen animals examined on August 30 showed a population of 2,000 flies, ranging from 10 to 400 flies per animal and averaging 118 flies per head. Average increased to 179 on September 1, and on September 3 average was 150 per head. (September 11): Average of 97 flies per head on 25 yearling cattle observed today at Menard.

W. G. Bruce (September 1): Less numerous on a ranch at Cresson during month ended August 14 than at any time observed in the last 3 years. (September 24): Infestations on increase at Cresson. No marked increase at Dallas.

COMMON CATTLE GRUB (Hypoderma lineatum De Vill.)

Texas. E. C. Cushing (September 11): Twenty-four yearling cattle examined at Menard had 52 cattle grubs, the numbers ranging from 0 to 12 per animal. Sixteen showed no infestation. Two of this same group of animals examined on September 4 showed infestations of 8 and 4.

HOPSE

AMERICAN GADFLY (Tabanus americanus Forst)

New Jersey. H. D. Fields (August 30): Collected at Glassboro. No host. (Det. by A. Stone.)

Florida. W. E. Dove (September 15): T. atratus F. present about animals at Panama City. Observed frequently during last few weeks.

Missouri. L. Haseman (September 25): Ceased to attract any attention during first part of September.

Texas. D. C. Parman (September 1): Light population present in Uvalde during August.

A SIMULIID (Simulium vittatum Zett.)

Washington. E. F. Knipling (September 10): Collected from ears of horses at Yakima on August 24. (Det. by A. Stone.)

POULTRY

CHICKEN MITE (Dermanyssus gallinae Deg.)

Nebraska. H. D. Tate (September 6): Reported from Douglas County.

SHEEP

SHEEP KED (Melophagus ovinus L.)

Texas. E. C. Cushing (September 3): Examinations of sheep on August 31 revealed only one or two parasites on one lamb.

HOUSEHOLD AND STORED-PRODUCTS INSECTS

TERMITES (Isoptera)

Maryland. E. M. Cory (September 23): Found in buildings in Baltimore County

C. Lyle (September 25):

Mississippi. Termites reported as injuring buildings in Attala, Chickasaw, Hinds, Leflore, Simpson, Washington, and Yazoo Counties. More than usual number of complaints reported from northeastern counties, and more than usual damage to sweetpotatoes reported from southwestern counties.

Nebraska. H. D. Tate (September 16): Reticulitermes tibialis Banks reported as attacking Chinese elm trees in Harlan County.

Utah. G. F. Knowlton (September 4): Termite injury to homes increasing in Beaver Elder County.

Montana. H. B. Mills (August 31): R. tibialis damaging wooden understructure of residence at Helena.

ANTS (Formicidae)

Florida. W. Mathis (September 18): Wasmannia auropunctata Roger very numerous in a grapefruit grove near Fort Pierce.

J. C. Overpeck (September 18): Specimens of W. auropunctata sent in and reported as being on trees and in houses. (Det. by M. R. Smith.)

Mississippi. C. Lyle and assistants (September 25): Specimens of Camponotus caryae rasilis Wheeler received early in September from Harriston, with report that they were causing annoyance in a kitchen and a bedroom. Monomorium pharaonis L. reported as causing annoyance in house in the Gulfport district. Specimens of Iridomyrmex humilis Mayr received from Holmes County, and reports received from Amite, Monroe, and Pike Counties and in southwestern Mississippi areas not treated last year. Solenopsis xyloni McCook reported as numerous in Grenada County.

ARGENTINE ANT (Iridomyrmex humilis Mayr)

Hawaii. O. C. McBride (September 13): Abundant at Fort Shafter and vicinity. New pest in Hawaii. Presumably found entrance through Army supplies or personnel household goods coming from infested areas on the mainland. Specimens received.

GERMAN COCKROACH (Blattella germanica L.)

Mississippi. C. Lyle (September 25): Specimens received from Hinds County on August 24. Reported as abundant in many homes in the coast counties.

Nebraska. H. D. Tate (September 16): Specimens received from Butler County.

Utah. G. F. Knowlton (August 28): Causing annoyance in a high-school gymnasium at Logan.

Nevada. G. G. Schweis (September 18): Reported as being prevalent in many restaurants in western Nevada and very numerous in the department of veterinary science at the University of Nevada.

CRICKETS (Gryllidae)

Virginia. H. G. Walker and L. D. Anderson (September 25): Reported as migrating into houses and feeding on clothing during last 2 months at Norfolk.

Utah. G. F. Knowlton (September 18): Gryllus assimilis F. found invading home at Tooele.

WEBBING CLOTHES MOTH (Tineola biselliella Kun.)

Nebraska. H. D. Tate (August 29): Reported as being present in Colfax County.

BEETLES (Coleoptera)

Massachusetts. A. I. Bourne (September 9): Mezium americanum Lap. reported from eastern part of Plymouth County along the South Shore. Specimen received.

Alabama. J. M. Robinson (September 18): Sitophilus oryza L. moderately abundant at Auburn.

Mississippi. C. Lyle (September 25): S. oryza reported as injuring corn in Newton and Pearl River Counties. Injury at State College less than last year.

Nebraska. H. D. Tate (August 24): Specimens of Stegobium paniceum L. received from Douglas County. (September 3): Specimens of Tribolium confusum Duv. found in barley and oats in Wayne County. (September 6): Specimens of Tenebrio molitor L. and Alphitobius diaperinus Panz. received from Douglas County. (September 7): Specimens of Tenebrio obscurus F. sent in from Gosper County. (September 9): Specimens of Sitophilus granarius L. submitted from Cedar County.

Utah. G. F. Knowlton (August 29): Palorus ratzeburgi Wissm. causing household annoyance in Salt Lake City and contaminating home flour supply.

A BEETLE (Buprestis lineata F.)

Massachusetts. A. I. Bourne (September 14): Specimen received from town of West Dennis, on Cape Cod. Reported as emerging from floor boards of a house.

POWDER POST BEETLES (Lyctus spp.)

Wisconsin. E. L. Chambers (September 26): Causing more damage each year in many sections of the State. Completely ruined two large barns, approximately 40 years old, in Brown County.

A PSOCID (Lachesilla pedicularia L.)

Indiana. J. J. Davis (September 13): Specimens received from Anderson. Annoying to occupants of a house. (Det. by A. B. Gurney.)

HESSIAN FLY SURVEY AT HARVEST TIME 1940

Summarized by W. B. Cartwright
Division of Cereal and Forage Insect Investigations
U. S. Bureau of Entomology and Plant Quarantine

Field surveys made by the Bureau of Entomology and Plant Quarantine stations at Manhattan, Kans., Lafayette, Ind., and Carlisle, Pa., and by the State agricultural experiment stations of Illinois, Ohio, and Missouri indicate that hessian fly infestations are low in wheatfields throughout Maryland, Delaware, northeastern and southern Virginia, south-central Pennsylvania, north-central North Carolina, Ohio, Indiana, Michigan, southern Illinois, west-central Tennessee, and northern and southeastern Missouri. There are, however, menacing populations of flies in local fields and areas in most of these States or districts.

Hessian fly infestations range from low to moderate in north-central Pennsylvania, northwestern Virginia, Kentucky, eastern Tennessee, eastern Illinois, and in south-central and eastern Kansas, with local infestations trending upward. No surveys were reported for Iowa, but fragmentary data indicate that infestations are from low to heavy in southeastern Nebraska. From moderate to heavy infestations of the hessian fly occur in eastern and western Pennsylvania and in southwestern Missouri. Observance of the safe-seeding dates is advised in all areas, because the season has been favorable for hessian fly and for growths of volunteer wheat.

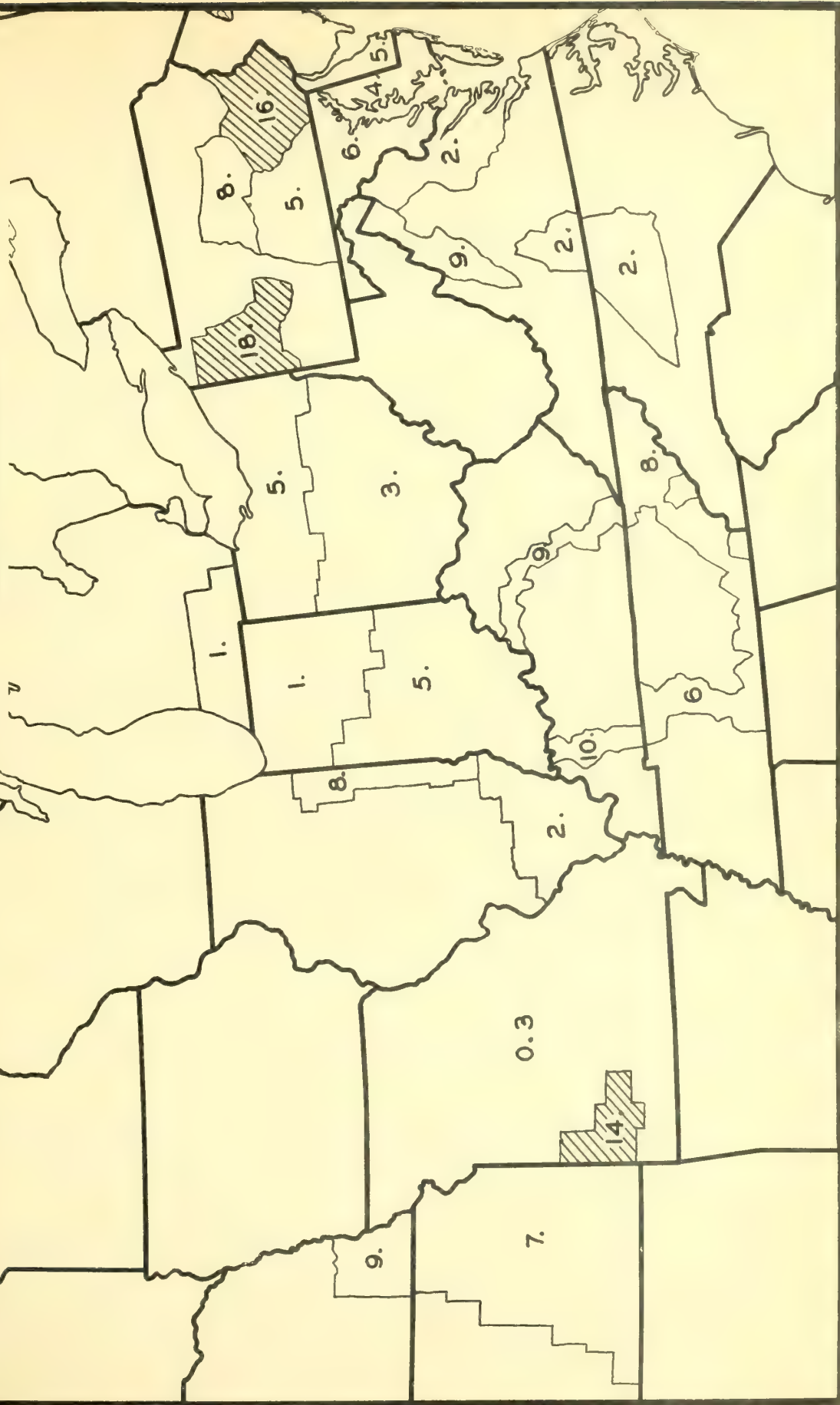
The data summarized in the following table, and the accompanying map, indicate more fully the regions covered by the survey and the general trend of fly infestations. A field sample in the survey usually consisted of 50 wheat stems.

Area	Fields sampled Number	Stems infested		
		Average Percent	Maximum Percent	Minimum Percent
Kansas:				
South-central and eastern--	99	7.0	44	0
Missouri: ^{1/}				
Northern and southeastern--	19	0.3	2	0
Southwestern-----	12	14.0	30	0
Nebraska, southeastern-----	--	9.0	--	--
Illinois: ^{1/}				
Eastern-----	--	8.0	--	--
Southern-----	--	2.0	--	--
Michigan, southern-----	42	1.0	4	0
Indiana:				
Northern-----	141	1.0	10	0
Southern-----	186	5.0	32	0
Ohio: ^{1/}				
Northern-----	--	5.0	--	--
Southern-----	--	3.0	--	--
Kentucky:				
Western-----	15	10.0	34	0
East-central-----	23	9.0	50	0
Tennessee:				
West-central-----	37	6.0	36	0
Eastern-----	46	8.0	32	0
Pennsylvania:				
Western-----	15	18.0	46	0
North-central-----	20	8.0	26	0
South-central-----	35	5.0	26	0
Eastern-----	25	16.0	80	0
Delaware-----	10	5.0	16	0
Maryland:				
Western-----	25	6.0	44	0
Eastern-----	15	4.0	26	0
Virginia:				
Northwestern-----	20	9.0	52	0
Northeastern-----	40	2.0	16	0
Southern-----	15	2.0	6	0
North Carolina, north-central:	40	2.0	16	0

^{1/} Mostly from surveys by State entomologists.

HESSIAN FLY SURVEY AT HARVEST TIME 1940

Numbers indicate percentage of stems infested.
Cross-hatching indicates areas of moderate to
severe infestation.



THE MORE IMPORTANT RECORDS FOR OCTOBER

During the month the European earwig was reported as doing some damage in Reno, Nev. This is the first record we have of the occurrence of this insect in that State.

The weevil Eudiagogus rosenschoeldi Fahr. was found feeding on the leaves of a leguminous weed (Glottidium vesicarius) at Macon, Ga. This is our first food-plant record on this weevil.

Chinch bugs were causing considerable damage to early seeded rye in northwestern Iowa this fall. The number of chinch bugs going into hibernation has decidedly increased during the month, in Illinois, owing to dry, warm weather. The chinch bug situation is more serious than it has been in the last 6 years in eastern Kansas. Serious damage to fall-sown wheat was reported from Oklahoma.

European corn borer severely damaged late sweet corn in Connecticut. High populations of this insect are also reported from southeastern Pennsylvania and north-central and northwestern Ohio. Found in Champaign County, Ill., which is a new county record for the State.

The apple maggot has done more damage in the Hudson Valley of New York State this year than it has in the last few years.

In parts of Virginia, where Comstock's mealybug is prevalent, as high as 50 percent of the eggs of the third brood will apparently not hatch this fall.

Several species of scale insects attacking citrus in Florida increased decidedly during the month.

Cucumber beetle was generally prevalent over much of the country, particularly damaging late squash, cucumbers, and beans, the beetles attacking the fruit.

The corn ear worm was reported from a large part of the South, the principal damage being to corn and tomatoes. In parts of California this insect damaged as high as 40 percent of the tomato fruit.

The tomato pinworm was infesting from 42 to 88 percent of the tomato crop in two counties in California.

The carrot weevil was seriously damaging carrots in Kansas. This appears to be the first report of injury by this insect in that State.

The cotton leaf perforator practically defoliated several areas in the Salt River Valley during the latter part of the summer. This is the earliest and most severe injury ever reported in this area.

Large areas of beech trees are dying in eastern and northern Maine. This is being caused by the beech scale and the necrotic disease which follows infections of this insect.

A very heavy infestation by a tip moth, Rhyacionia rigidana Fern., on pine occurred in Mathews County, Va.

The red-headed pine sawfly was destructively abundant in Vermont and parts of New York and Virginia.

A heavy infestation of a twig borer, Pityophthorus sp., occurred in the Honey Brook State Forest in New Hampshire. Over 50 percent of the Scotch pine trees were seriously affected.

THE MORE IMPORTANT FEATURES IN CANADA FOR SEPTEMBER

Grasshopper surveys carried out in the three Prairie Provinces indicate that during the 1940 season there was a marked increase in the grasshopper population in Manitoba, particularly in the southern part of the Red River Valley, where the infestation developed to the severe category. A moderate infestation extends over most of south-central Manitoba, north to the Assiniboine and northwestward to about Virden. Southwestern Manitoba and the remainder of the grasshopper area of the Province carry a light infestation, with severe and moderate areas north of Winnipeg. Considering the abundance of grasshoppers, damage was very low during the season, owing to rains at critical periods. The grasshopper infestation throughout southern Saskatchewan is much less than has been expected. There are now no severe or very severe areas anywhere in the Province, and the moderate areas are restricted and tend to be light. Over most of southern Saskatchewan the infestation is light; in the north and central areas only a few light infestations are still found. Evidence indicates that there will be an absence of very severe infestations in the Province in 1941. In Alberta considerable migration of grasshoppers from the southeast into better crops areas occurred during August, with rather heavy damage to wheat in some districts and slight damage to late oats and barley. From observations it is anticipated that, in general, the 1941 infestation will be somewhat lighter than that in 1940.

The field cricket was locally reported abundant in Ontario, Manitoba, and Saskatchewan. Field tomatoes, clover, alfalfa, wheat, and flax were among the crops attacked.

Losses in Alberta from the wheat stem sawfly were much greater this year than in 1939. Damage was also heavy in the lighter soil areas of south-central Saskatchewan where summer fallowing has been infrequent.

Small outbreaks of the armyworm occurred in different parts of Nova Scotia, New Brunswick, Manitoba, and Saskatchewan. In Manitoba the infestations were locally severe on oats, corn, and millet.

Moderate infestations of the Mexican bean beetle were found in garden beans in the vicinity of Niagara Falls, Ontario, and specimens were collected in Japanese beetle traps at St. Catharines. However, this species seems incapable of establishing itself as a serious pest in the Province.

The cabbage seed weevil (Ceutorhynchus assimilis Payk.) was destructive to cabbage and Swedish turnip grown for seed in the Victoria district, British Columbia.

The European corn borer was very prevalent in corn-growing regions of Ontario and Quebec and rendered much sweet and canning corn unfit for use. The stalk infestation in field corn in southwestern Ontario was unusually heavy. In addition to corn, other plants were attacked including gladiolus, millet, potato, and hops, but the infestations were not of economic significance.

Reports from Quebec, Ontario, Saskatchewan, and Alberta indicate an increased abundance of the imported cabbage worm over a wide area, with heavy losses of crop where insecticides were not used.

An outbreak of the clover seed chalcid (Bruchophagus gibbus Boh.) developed at Eriksdale and Winnipeg, Manitoba.

For the first time, an infestation of the Japanese beetle was found in Canada, when 18 female beetles and 14 males were collected in a rose garden in Queen Victoria Park, Ontario.

Increased infestations and damage by the codling moth were reported in the Annapolis Valley in Nova Scotia, the Niagara district in Ontario, and the Okanagan Valley in British Columbia.

Although the infestation of the Pacific mite has spread somewhat in the Oliver district, British Columbia, it has not been found this year in any other fruit-growing area of the Province.

The chain-spotted geometer was very prevalent in western Nova Scotia, where the larvae severely damaged blueberry barrens and also attacked cranberries. A other species, the cranberry fruit worm, was unusually numerous in cranberry bogs in the Annapolis Valley.

A disease observed in previous years has considerably reduced the larval population of the European spruce sawfly throughout much of New Brunswick. This disease was also found to be widespread and causing high mortality on the upper reaches of the Cascapedia in the Gaspé, Quebec, and was observed in the extensive but lightly infested areas in Cumberland and Pictou Counties, Nova Scotia.

GENERAL FEEDERS

GRASSHOPPERS (Acrididae)

- Connecticut. A. De Caprio (October 23): Melanoplus punctulatus Scudd. almost completely defoliated several small white pine trees at Rainbow.
- Florida. G. B. Merrill and E. W. Berger (October 23): Schistocerca americana Drury moderately abundant on citrus trees at Plant City after owners mowed cover crops between the trees.
- Mississippi. C. Lyle (October 28): Specimens of M. mexicanus Sauss. collected from Bermuda grass and clover in Holmes County.
- E. W. Dunnam, et al. (October 26): Grasshoppers are more numerous than normal in Washington County.
- Missouri. L. Haseman (November 1): M. mexicanus, M. differentialis Thos., and M. femur-rubrum Deg. continued to mate and oviposit throughout October.
- Kansas. H. R. Bryson (October 23): Grasshoppers most abundant in western half of State. Eastern line of area extends to and overlaps the western boundary of the area where the chinch bugs are most plentiful.
- Utah. (October 16): Still abundant in some alfalfa fields in the Brigham-Perrin area of Box Elder County. (October 19): Abundant and ovipositing at summit of Cowley Canyon, in Cache County; fewer present at summit of Logan Dry Canyon.
- California. S. Lockwood (October 21): M. mexicanus is the dominant species and the only one of major importance in Imperial County. Egg development with bodies of female M. devastator Scudd. has continued but as yet no oviposition has been found.

EUROPEAN EARWIG (Forficula auricularia L.)

- Nevada. A. E. Michelbacher (October 22): Reported as doing some damage at Reno. Specimens received.

JAPANESE BEETLE (Popillia japonica Newm.)

- Connecticut. J. Peter Johnson (October): Lawn and turf damage in New Haven and Hartford very noticeable in early October.
- Maryland. H. C. Donohoe (October 8): Last spring a grower near Dundalk started several hundred thousand hydrangeas for winter forcing in pots imbedded in a field bed and kept them thoroughly watered during the summer. The beetles were attracted to this moist area and laid eggs to such an extent that severe injury to the hydrangeas from larval feeding occurred. Examination of severely infested 4-inch pots showed a maximum population of 30 grubs per pot. Examination of 95 4-inch pots on September 28 gave an average infestation of 6 grubs per pot, mainly in the third instar.

GREEN JUNE BEETLE (Cotinis nitida L.)

Maryland. E. N. Cory (September 21): Destroyed plantings of spinach and kale at Chaptico, Saint Marys County.

Georgia. T. L. Bissell (October 26): Grubs have heavily infested the edge of a green on a golf course at Griffin, as many as 20 burrows or dirt piles per square foot being present on side where grass clippings were not raked.

WHITE GRUBS (Phyllophaga spp.)

Kansas. H. R. Bryson (October 28): Injurious this fall in lawns and in some plantings of wheat at Manhattan.

WIREWORMS (Elateridae)

Ohio. T. H. Parks (October 28): Limoni agonus Say seriously damaged potatoes in a field in Sandusky County. (Det. by M. C. Lane.)

Mississippi. C. Lyle (October 28): Wireworms were causing injury to about 25 percent of the black locust seedlings in a 12-acre nursery in Yalobusha County. Reported from the southwestern district and as damaging sweet-potatoes in Monroe and Tippah Counties.

Oklahoma. F. A. Fenton (October 28): Reported as doing some damage to wheat.

Arizona. H. G. Johnston (October 23): Approximately 75 percent of the plants in a 20-acre field of lettuce at Phoenix were destroyed during early September. Light infestations in other fields.

A WEEVIL (Eudicogus rosenschoeldi Fahr.)

Georgia. T. L. Bissell (October 18): Found feeding on leaves of a leguminous weed, Glottidium vesicarium, near railroad tracks at Macon.

FALL ARMYWORM (Laphygma frugiperda A. & S.)

Virginia. H. Walker and L. D. Anderson (October 22): Caused some damage in several spinach and kale fields in the Norfolk area during September and October. Infestation in late corn unusually light. Rather severely injured a field of cabbage in Norfolk County, having eaten into many of the developing heads, making them unfit for market.

Mississippi. C. Lyle (October 28): Specimens received from Clay and Hinds Counties. Reported as injuring late corn in Holmes and Monroe Counties, tunnels being made in large cornstalks in one case.

Texas. R. K. Fletcher (October 14): Present on Bermuda grass in Brazos County.

California. J. Wilcox (October 15): Damaged about 15 percent of a field of sweet corn at Garden Grove, Orange County.

WHITE-LINED SPHINX (Sphinx lineata F.)

Utah. G. F. Knowlton (October 12): Larvae seriously damaged evening primrose in flower gardens at Logan during the season. Moths have been abundant some evenings.

MONARCH BUTTERFLY (Danaus menippe Hbn.)

Missouri. L. Haseman (November 1): During much of October there has been a rather conspicuous movement of the butterflies throughout Central Missouri with larvae and pupae observed during the early part of the month.

SAY'S STINKBUG (Chlorochroa sayi Stal)

Nebraska. H. D. Tate (September 27): Specimens collected from potatoes in Scotts Bluff County.

CEREAL AND FORAGE-CROP INSECTS

WHEAT

CHINCH BUGS (Blissus leucopterus Say)

Illinois. W. P. Flint (October 22): Late-hatched nymphs have matured during late September and early October owing to dry and very warm weather, causing a decided increase in the number that will overwinter.

Iowa. C. J. Drake (October 24): Caused considerable damage to early seeded rye in northwestern Iowa this fall. Practically destroyed outfields in a number of counties. Reported as doing some damage to corn in other portions of the State. Many of the first hatch of second generation destroyed owing to weather conditions, but these factors were more favorable for the bugs during the latter part of the hatch. Summer rains provided an abundance of host plants in small-grain stubble fields and the population is more scattered than it was last year. Bugs are now seeking winter quarters.

Missouri. L. Haseman (November 1): Movement from corn toward winter quarters throughout central Missouri started early in October, but some bugs, still in the last larval stage, were on corn up until the last week in October.

Kansas. H. R. Bryson (September 25): Nymphs of first generation at Manhattan were greatly reduced in numbers by the high temperatures which prevailed about the time the young bugs were migrating from the small grains to the corn and sorghums, causing the second generation at Manhattan and in other localities in northeastern Kansas to be greatly reduced. (October 25): Chinch bug situation more serious than it has been since 1923-24, according to recent surveys, the area involved being about the eastern one-third of the State.

Oklahoma. F. A. Fenton (October 28): Caused severe damage in some wheatfields. Bugs migrating across the field, kill the plants in the same way they destroy corn in the summertime. Large spots in some fields killed similar to damage caused by the green bug.

HESSIAN FLY (Phytophaga destructor Say)

Ohio. T. H. Parks (October 28): Very few eggs deposited during autumn and 1941 wheat crop is free from any serious infestation.

Iowa. H. E. Jaques (October): Present in Buena Vista and Mills Counties.

Missouri. L. Haseman (November 1): Scattered checkups during October showed a considerable sprinkle of the fly, mostly in the flaxseed stage, in volunteer wheat which began developing with the late summer rains throughout west-central Missouri. However, with delayed seeding and delayed germination due to dry weather, infestation of the seeded crop throughout the northern half of the State is light, with the exception of an occasional field mostly in the Missouri River Valley.

Kansas. H. R. Bryson (September 20): Abundant in fields of volunteer wheat in the central part of the State.

Oklahoma. F. A. Fenton (October 28): Reported on wheat at Cleveland.

A SCARABAEID (Cyclocephala borealis Arrow)

Nebraska. H. D. Tate (October 16): Specimens sent in from Saline County on October 9, with report that considerable damage was being done to wheat. Similar report from Jefferson County received a few days earlier.

A FLEA BEETLE (Chaetocnema denticulata Ill.)

Oklahoma. F. A. Fenton (October 28): Caused considerable damage in some wheatfields, killing young plants as it migrates across the fields from grasses where it may have developed.

FALSE WIREWORMS (Eleodes spp.)

Kansas. H. R. Bryson (September 25): Have caused less injury in some sections of the wheat-growing region in western Kansas, owing to the rapid germination of seed because of favorable weather conditions. One report of injury was received from Nashville, in the southern border near center of the State.

CORN

CORN EAR WORM (Heliothis armigera Hbn.)

Pennsylvania. G. B. Slesman (October): Caused severe damage to sweet corn in Delaware and Montgomery Counties.

Iowa. H. E. Jaques (October): Reported as light to moderate in a few counties in the State.

Missouri. L. Haseman (November 1): Corn ear worms continued to feed in central Missouri on late sweet corn throughout October.

Kansas. H. R. Bryson (October 27): Injury reported as from 20 to 30 percent worse than it was last year.

Texas. P. T. Rihard (September 21): Heavily infesting sweet corn in bud in Hidalgo County.

Arizona. H. G. Johnston (October 23): Bud damage to sweet corn is severe in Salt River Valley.

California. J. Wilcox (October 15): Field of sweet corn was 95-percent infested at Garden Grove, Orange County.

A. E. Michelbacher (October 22): Ears on a late planting of corn at Brentwood were 100-percent infested. At harvest, which started October 15, each ear of corn was infested with 1 to 3 or more worms.

EUROPEAN CORN BORER (Pyrausta nubilalis Hbn.)

Connecticut. N. Turner (October 25): Damage to late sweet corn at Mount Carmel much more severe than last year.

Pennsylvania. G. B. Slesman (October): Survey of seven counties made to determine the degree of infestation where two broods are known to occur. Northampton and Lehigh Counties showed a very light infestation, while the more southern counties, viz., Bucks, Berks, Montgomery, Chester, and Delaware, showed a very high degree of infestation.

Ohio. T. H. Parks (October 28): Cornstalk breakage ranged up to 25 percent in favored locations in north-central and northwestern Ohio counties.

Illinois. W. P. Flint (October 29): Discovered in Champaign County.

CORN LEAF APHID (Aphis maidis Fitch)

Nebraska. H. D. Tate (September 23): Stalk of club kafir received from Butler County was heavily infested.

A LEAFHOPPER (Baldulus maidis DeL. and Wolcott)

California. R. E. Campbell (October 11): Numerous on 10 acres of sweet corn in Los Angeles Co., causing stunted growth and lack of commercial crop. Leaves of corn and the ground underneath were covered with honeydew and black with sooty mold fungus. Heavily infested 12 acres of potatoes nearby.

ALFALFA AND CLOVER

ALFALFA WEEVIL (Hypera postica Gyll.)

California. A. E. Michelbacher (October 22): Scarce over most of the infested region of the San Joaquin Valley on October 15. Larval count ranged from 0 to 2 while the adult count ranged from 0 to 37 per 100 sweeps. Extremely scarce on October 9 in region adjacent to the San Francisco Bay. Number of larvae collected per 100 sweeps ranged from 0 to 2 while not a single adult was collected in any fields swept.

PEA APHID (Macrosiphum pisi Kltb.)

Utah. G. F. Knowlton (September 24): Peafields heavily infested at Dewayville and Fielding, Box Elder County. (October 16): Rather abundant generally on succulent alfalfa wherever it has been examined in Box Elder, Davis, Weber, and Salt Lake Counties, all in northern Utah. (October 21): Much more abundant in Cache County alfalfa fields than during hot weather of midsummer and late summer.

THREE-CORNERED ALFALFA HOPPER (Stictocephala festina Say)

Arizona. H. G. Johnston (October 23): Few fields of alfalfa at Phoenix severely injured by nymphs, collapsing the stems of plants just above the surface of the ground.

TARNISHED PLANT BUG (Lygus pratensis oblineatus Say)

Kansas. H. R. Bryson (October 27): Exceptionally abundant on sorghum heads and alfalfa.

ALFALFA CATERPILLAR (Colias eurytheme Bdv.)

California. A. E. Michelbacher (October 22): Larval population small in northwestern portion of the San Joaquin Valley. Largest number collected per 100 sweeps on October 15 in any field was 125, most of them being very small and parasitized by the larval parasite Apanteles flaviconchae Riley. Parasitization exceeded 85 percent in many fields. In the region adjacent to the San Francisco Bay the larval population on October 9 was very small, the most collected in any field being 4. Parasitization was high.

VETCH

VETCH BRUCHID (Bruchus brachialis Fahr.)

South Carolina. F. Sherman and W. C. Nettles (October 26): Considerable infestation noted in Anderson County.

VELVETBEAN

VELVETBEAN CATERPILLAR (Anticarsia gemmatilis Hbn.)

Florida. J. R. Watson (October 22): Adults extremely abundant. Damage not as severe this year as during some other years.

LENTELS AND BROADBEANS

COWPEA APHID (Aphis medicaginis Koch)

Idaho. T. A. Brindley (October 28): Was found on fabas and lentels at Moscow in July of this year. It damaged fields of lentels to an estimated extent of 90 percent during 1939. (Det. by P. W. Mason.)

F R U I T I N S E C T S

SHOT-HOLE BORER (Scolytus rugulosus Ratz.)

Mississippi. C. Lyle (October 28): Peach trees injured in Hinds County.

LEAFHOPPERS (Cicadellidae)

Missouri. L. Haseman (November 1): Various species of leafhoppers have caused considerable annoyance throughout the fore part of October by coming to lights at night and until October 20, one species was extremely abundant in central Missouri on the foliage of elm.

SAN JOSE SCALE (Aspidiotus perniciosus Comst.)

Maryland. E. N. Cory (October 16): Reported from Baltimore.

West Virginia. F. Waldo Craig (October 23): Collected on black chokeberry, Aronia melanocarpa, in a nursery at Charleston. (Det. by H. Morrison.)

Georgia. O. I. Snapp (October 30): Weather conditions favorable for scale reproduction have produced an increased infestation at Fort Valley, in the Georgia peach belt.

Mississippi. C. Lyle (October 28): Infestations reported from Washington County, and from the Grenada, Jackson, and northeastern districts.

WHITE PEACH SCALE (Aulacaspis pentagona Targ.)

Virginia. H. G. Walker and L. D. Anderson (October 22): Reported as attacking peach, privet, candytuft, mulberry, gooseberry, catalpa, scotch broom, and lilac at Norfolk.

Georgia. M. Murphey, Jr. (October 10): Specimens received from Lula, Hall County.

Mississippi. D. W. Grimes (October 28): Privet hedge plants severely damaged in Sunflower County.

APPLE

CODLING MOTH (Carpocapsa pomonella L.)

Ohio. T. H. Parks (October 28): Blemished fruit in commercial apple orchards at harvest time averaged 6.2 percent, the same as in 1938 and higher than in 1939. Most trouble generally occurred in Lawrence County, southern Ohio, and in the Cincinnati area. Serious losses in four orchards along the west end of Lake Erie.

Illinois. W. P. Flint (October 22): Oviposition and hatching occurred throughout most of the month. Heavy overwintered population will occur in most orchards.

Missouri. L. Haseman (November 1): The open fall permitted the late third-brood larvae to continue to feed and develop in apples until the middle of October or a little later throughout central Missouri. There is also an unusually heavy build-up of overwintering worms in most of the orchards of the State.

Missouri and Kansas. H. Baker (October 22): Moths caught in small numbers in bait traps almost daily until operation of traps was discontinued on October 5 in Saint Joseph, Mo. Practically no moths emerged after September 9 and very few after September 1. Very little evidence of new larval activity in northwestern Missouri and northeastern Kansas after middle of September.

APPLE MAGGOT (Rhagoletis pomonella Walsh)

New York. D. W. Hamilton (October 21): Commercial apple orchard injury throughout the Hudson Valley is more frequent than during the last few years, injury occurring late in the season.

Ohio. T. H. Parks (October 28): Infested apples received from Fremont, Sandusky County. No serious damage in northeastern counties where insect is established.

COMSTOCK'S MEALYBUG (Pseudococcus comstocki Kuw.)

Massachusetts. W. B. Becker (September 30): Found on mulberry trees at Holyoke. (Det. by Louise M. Russell.)

Virginia. G. J. Haussler (October 29): From only a few to nearly 50 percent of the eggs of the third brood have failed to hatch in various Albemarle County apple orchards. Many eggs have remained pale yellow in color and will apparently overwinter. Feeding nymphs of the third generation are now chiefly in the second and third instars. Adult females of this generation first noted on October 10. Observed depositing eggs of the fourth brood since October 18.

Correction: Virginia and West Virginia. On page 445 of the October 1 issue, the seventh line should read "eggs of the third generation began hatching about August 19." instead of "August 1." This correction also applies to the next to the last paragraph on page 433.

EUROPEAN RED MITE (Paratetranychus pilosus C. & F.)

Ohio. T. H. Parks (October 28): Eggs prevalent on the calyx end of apples harvested in many apple orchards. No serious damage.

PEACH

ORIENTAL FRUIT MOTH (Grapholitha molesta Busck)

Virginia. O. I. Snapp (October 4): Heavy infestation observed today in a late variety of peach in an orchard near Gore, in northern Virginia.

Mississippi. C. Lyle (October 28): Specimens of peach twigs injured by larvae received from Wayne County. Reported as causing injury in Carroll, Claiborne, Grenada, and Hinds Counties, and in the Durant and Jackson districts.

Texas. R. K. Fletcher (September 23, 24): Heavily infesting fruits and twigs of peach in Wichita County.

PEACH BORER (Conopia exitiosa Say)

Georgia. O. I. Snapp (October 30): Unusually dry weather prevented many newly hatched larvae from entering peach trees at Fort Valley, in the Georgia peach belt, which has resulted in a lighter infestation than that of an average year.

Mississippi. C. Lyle (October 28): Infestations reported from Lafayette County and the northeastern district, and from Claiborne, Hinds, Simps and Yalobusha Counties.

Texas. R. K. Fletcher (October 20): Present in Johnson County.

Nebraska. H. D. Tate (September 26): Reported from Madison County.

PEACH TWIG BORER (Anarsia lineatella Zell.)

Oklahoma. F. A. Fenton (October 28): Reported from Cushing.

PEAR

PEAR PSYLLA (Psylla pyricola Foerst.)

Washington. J. F. Cooper (October 7): Specimens found on pear 3 miles south of Tonasket, and at Loomis, Okanogan County. Also found 4 miles northeast of Entiat and southwest of Peshastin, Blewitt Road, Chelan County. (Det. by P. W. Oman.)

PEAR LEAF BLISTER MITE (Eriophyes pyri Pgst.)

California. S. Lockwood (October 21): More numerous generally in a majority of pear orchards in El Dorado and Placer Counties.

PECAN

WALNUT CATERPILLAR (Datana integerrima G. & R.)

Oklahoma. C. F. Stiles (October 29): Partially defoliated pecan trees throughout south-central portion of State during last few weeks.

HICKORY SHUCK WORM (Laspeyresia caryana Fitch)

Mississippi. G. Lyle (October 28): Heavy infestations reported from Jackson County, and medium damage from the Meridian district.

BLACK PECAN APHID (Melanocallis caryaefoliae Davis)

Mississippi. C. Lyle (October 28): General but light infestations reported from the Meridian district.

CITRUS

SCALE INSECTS (Coccidae)

Florida. J. R. Watson (October 22): Marked increase in Lepidosaphes beckii Newm., Chrysomphalus aonidum L., and C. dictyospermi Morg. during month, owing to dry weather appearing mostly in central Florida. First time latter has been regarded as a serious pest.

H. Spencer (October 24): L. beckii causing some trouble in citrus groves in the Ridge, or central, section of Florida. C. aonidum less troublesome than usual. Few spots of heavy infestation found on lower east coast where defoliation did not occur after the January freeze. Icerya purchasi Mask. is appearing in grapefruit and orange groves along the lower east coast.

Texas. R. K. Fletcher (September 24): Coccus hesperidum L. present on citrus in Hidalgo County. General over lower Rio Grande Valley.

CITRUS WHITEFLIES (Dialeurodes spp.)

Florida. J. R. Watson (October 22): Adults of D. citri Ashm. have largely disappeared. D. citrifolii Morg. are largely on the wing in many parts of the State.

Mississippi. C. Lyle (October 28): D. citri causing injury to hedge plants and other shrubs in the coastal counties and the Meridian district. Dry weather has interfered seriously with the entomogenous fungi.

CITRUS RED MITE (Paratetranychus citri McG.)

Florida. H. Spencer (October 24): Increasing in numbers on the lower east coast, owing to dry weather during last two weeks.

CITRUS RUST MITE (Phyllocoptes oleivorus Ashm.)

Florida. H. Spencer (October 24): Less abundant than usual in the lower east coast, some untreated trees showing no signs of russetting.

AN ORANGE DOG (Papilio cressphontes Cram.)

Florida. J. R. Watson (October 22): Young citrus trees damaged about the same as usual.

TRUCK CROP INSECTS

BLISTER BEETLES (Meloidae)

Ohio. E. W. Mendenhall (October 2): Epicauta pennsylvanica Deg. very troublesome, and destroyed flowers on aster plants at Marion.

Mississippi. C. Lyle (October 28): E. lemniscata F. injuring beans in Pearl River County, ornamentals and vegetables in the Meridian district, and present in the northwestern district. Specimens of E. marginata F. received from Clarke and Perry Counties where they were feeding on flowers and shrubbery. Blister beetles supposed to belong to this species were reported as injuring ornamentals and vegetables in the Meridian district. Blister beetles reported as injuring Irish potatoes in the Durant district.

Iowa. H. E. Jaques (October): Present in Cedar and Pottawattamie Counties.

Texas. R. K. Fletcher (September 26): E. lemniscata present on eggplants and general truck crops in Brazoria County.

CUCUMBER BEETLES (Diabrotica spp.)

Mississippi. C. Lyle and assistants (October 28): Medium infestations of D. vittata F. noted in the Meridian district and in Harrison County where late squash, cucumbers, and beans have been injured. D. duodecimpunctata F. causing injury in the Meridian and Durant districts where string and lima beans were being injured; also, in Harrison County to cucumber and squash. D. balteata Lec. causing injury to late squash plants in Harrison County the latter part of September.

Missouri. L. Haseman (November 1): Both D. duodecimpunctata and D. vittata have continued to feed on blossoms and late cucurbits throughout the month in central Missouri.

Kansas. H. R. Bryson (September 20): Larvae of D. duodecimpunctata were taken in volunteer wheat plants in a field near McFarland. (October 27): D. duodecimpunctata unusually abundant and some damage to chrysanthemum flowers has been done in Manhattan.

Arizona. H. G. Johnston (October 23): Approximately 50 percent of honeydew melon vines in a 40-acre field at Phoenix destroyed by larvae of D. trivittata Mann., attacking roots and underground stems. Damage most severe early in September.

Montana. D. J. Fletsch (October 24): Hundreds of D. vittata found in cantaloups with holes in the skin or round at Billings. Only three other specimens noted this year.

SIX-SPOTTED LEAFHOPPER (Macrosteles divisus Uhl.)

Montana. H. B. Mills (October 1): About six per head present on head lettuce 35 miles south of Bozeman, Gallatin County. (October 17): Specimens collected at Chinook, Blaine County. (Det. by P. W. Oman.)

TOBACCO BUDWORM (Heliothis virescens F.)

Georgia. T. L. Bissell (October): Caterpillars found feeding on seed pods of Meibomia purpurea at Experiment. First one found on August 14 produced moths September 5. Larvae again found on October 16.

MOLE CRICKETS (Scapteriscus sp.)

Florida. J. R. Watson (October 22): Destroyed practically half the stand of newly set strawberries in some fields of Bradford County. Damage severe to sugarcane and sorghum.

POTATO AND TOMATO

POTATO FLEA BEETLE (Epitrix cucumeris Harr.)

Nebraska. H. D. Tate (September 27): Heavy infestations on potatoes in Scotts Bluff County. Severe tuber injury occurred in some localities.

CORN EAR WORM (Heliothis armigera Hbn.)

Virginia. H. G. Walker (October 1): Rather seriously injuring a field of cabbage near Norfolk, the larvae boring into the head. (Det. by C. Heinrich.)

South Carolina. W. M. Upholt (October 25): Activity ceased in the Spartanburg area where a great deal of damage to tomatoes was done early in September. Worms continue active though in somewhat reduced numbers in the Clemson College plantings.

Mississippi. C. Lyle (October 28): Specimens received during latter part of September from Jackson County where they were causing serious injury to gladiolus flower stalks by making tunnels in them, and from Hinds County where cotton bolls were being injured. Reported as causing damage to late corn in Holmes County and the northwestern district, and to tomatoes in Attala County and the Meridian district.

Kansas. H. R. Bryson (October 27): Injury to tomato fruits greater this fall than last year.

Texas. S. E. Jones (October 9): Heavy infestation of tomatoes in Dimmit County.

California. A. E. Michelbacher (October 22): Has continued to be a serious pest of tomatoes in the northern producing section of the State, some infestations being as high as 40 percent.

J. Wilcox (October 25): In Orange County tomatoes harvested during August and September at Garden Grove averaged 41-percent damage, and a field at Olive, in which harvest started October 1, averaged 22 percent for the month.

TOMATO PINWORM (Keiferia lycopersicella Busck)

California. A. E. Michelbacher (October 22): Tomato crop in Madera and Merce Counties severely attacked during last summer. On October 3, the amount of infested fruit in different plantings at Madera ranged from 42 to 88 percent.

TOMATO WORM (Protoparce sexta Johan.)

Mississippi. L. J. Goodgame (October 28): Heavy infestations observed in Monroe County.

POTATO LEAFHOPPER (Empoasca fabae Harr.)

Iowa. H. E. Jaques (October): Present in Cedar County.

Texas. F. L. Thomas (October 23): No visible damage to snap beans at Natalia Medina County, at which location abundant damage occurred last year.

Utah. G. F. Knowlton (October 21): Injury to late potato foliage observed in several fields in Davis, Weber, and Cache Counties.

SUCKFLY (Dicyphus minimus Uhl.)

Texas. F. L. Thomas (October 16): Present on tomato at Lavaca.

GARDEN FLEA HOPPER (Halticus citri Ashm.)

Texas. P. T. Rihard (October 7): Present on tomatoes in Hidalgo County.

POTATO PSYLLID (Paratrioza cockerelli Sulc.)

Nebraska. (September 27): Eggs, nymphs, and adults on potato, tomato, and egg-plant in Scotts Bluff County.

Utah. G. F. Knowlton (October 21): No cases of severe damage to potatoes observed during 1940.

BEANS

MEXICAN BEAN BEETLE (Epilachna varivestis Muls.)

Mississippi. C. Lyle (October 28): Specimens received from Chickasaw and Jasper Counties. Reported as severely damaging beans in the Meridian and northeastern districts. Observed in Oktibbeha County.

BEAN LEAF BEETLE (Cerotoma trifurcata Forst.)

Mississippi. D. W. Grimes (October 28): Injured late beans and cowpeas in the Durant district.

BEAN APHID (Aphis rumicis L.)

Utah. G. F. Knowlton (October 21): Damage to canning green beans is very high and less than in 1939.

CABBAGE

CABBAGE LOOPER (Autographa brassicae Riley)

Connecticut. N. Turner (October 25): Unusually abundant on cabbage and cauliflower in the southern part of the State. Severe damage in untreated fields.

Texas. M. J. James (September 30): Present on cabbage in Galveston County.

California. J. Wilcox (October 3): Eight specimens observed in a newly set field at Garden Grove, Orange County.

IMPORTED CABBAGE WORM (Pieris rapae L.)

Connecticut. N. Turner (October 25): Unusually abundant on cabbage and cauliflower in the southern part of the State.

Mississippi. C. Lyle (October 28): Reported from Holmes and Pearl River Counties.

SOUTHERN CABBAGE WORM (Pieris protodice Bdv. & Lec.)

South Carolina. W. M. Upholt (October 1): Reported as doing considerable damage in the buds of turnips at Greer. (Det. by C. Heinrich.)

CROSS-STRIPED CABBAGE WORM (Evergestis rimosalis Guen.)

Mississippi. D. W. Grimes (October 28): Specimens taken from collards in Holmes County.

CABBAGE WEBWORM (Hellula undalis F.)

Mississippi. M. L. Grimes (October 28): Moderate infestations observed in the Meridian district on turnips.

HARLEQUIN BUG (Murgantia histrionica Hahn)

Mississippi. C. Lyle (October 28): Specimens received from Yazoo County, where collards and turnips were being injured. Light infestations reported from Attala, Holmes, and Tate Counties, and the Meridian district. Very numerous on collards in the Poplarville district.

SQUASH

SQUASH BUG (Anasa tristis Deg.)

New York. O. Livingston (October 15): Specimens taken at Avoca, Steuben County.

Wisconsin. C. L. Fluke (October 22): Unusually numerous this summer in Kewaunee, Fond du Lac, Juneau, and Dane Counties.

Iowa. H. E. Jaques (October): Light infestation found in Union, Clarke, and Warren Counties, in the southern part of the State, and in Clayton County, in the northeastern part of the State.

Kansas. H. R. Bryson (September 27): Injury to squash at Manhattan confined to fruits, which in many instances, are covered with adults and nymphs

Utah. G. F. Knowlton (October 21): Reported as injuring squash in Weber and Utah Counties.

Washington. H. P. Lanchester (October 23): Seriously affecting squash plant in the Walla Walla district.

CANTALOUPE

MELONWORM (Diaphania hyalinata L.)

Arizona. H. G. Johnston (October 23): Foliage and small melons at Yuma seriously damaged. Young larvae fed principally on surface of melon, and when half grown bore into melon. Most abundant during early September.

A MELON BUG (Pycnoderes quadrimaculatus Guer.)

Arizona. H. G. Johnston (October 23): Foliage and terminal buds in a few acres of cantaloup at Yuma severely damaged.

CARROT

CARROT WEEVIL (Listronotus latiusculus Boh.)

Kansas. H. R. Bryson (October 1): Larvae causing injury to carrots grown in Ottawa, tunneling surface of the carrots and rendering many roots unusable. The grower stated he had experienced difficulty in growing carrots in his garden for a period of 10 years. Appears to be first report of injury in Kansas.

CARROT BEETLE (Ligyrus gibbosus Deg.)

Nebraska. H. D. Tate (September 22): Specimens received from Fillmore County.

WESTERN BLACK FLEA BEETLE (Phyllotreta pusilla Horn)

Arizona. H. G. Johnston (October 23): Quite abundant and causing rather severe damage to several large carrot fields at Yuma during early September.

SWEETPOTATO

SWEETPOTATO WEEVIL (Cylas formicarius F.)

Mississippi. T. F. McGehee (October 28): Infestation in coastal district higher than last year.

Texas. P. T. Riherd (September 24): Heavily infesting potatoes in a grocery in Hidalgo County.

SWEETPOTATO FLEA BEETLE (Chaetocnema confinis Crotch)

Mississippi. C. Lyle (October 28): Fairly abundant in fields in Lamar and Pearl River Counties.

SWEETPOTATO HORNWORM (Herse cingulata F.)

Mississippi. C. Lyle (October 28): Adults received from Lee County and a pupa from Wilkinson County.

PEPPER

PEPPER WEEVIL (Anthonomus eugenii Cano)

California. J. C. Elmore (October 22): Caused 60-percent loss to pepper growers of Los Angeles, Orange, and San Diego Counties. Average of about 25-percent loss caused in Ventura County.

BEEETS

BEET LEAFHOPPER (Eutettix tenellus Bak.)

Utah. G. F. Knowlton (October 10): Twenty-eight acres of table beets completely destroyed by curly top during 1940 in Weber County.

C O T T O N I N S E C T S

BOLL WEEVIL (Anthonomus grandis Boh.)

Georgia. P. M. Gilmer, et al. (October 5): Fairly well distributed over most fields in Tift, Berrien, Cook, Lowndes, and Echols Counties, in southern Georgia. A few blooms are to be seen indicating very light oviposition, but punctured squares are rather the exception. Numbers of weevils are much less than usual at this time, but the rather widespread distribution may account for the seemingly smaller numbers. Much lighter than normal brood expected to go into winter quarters, but this brood will be well fed and in good condition.

Florida. C. S. Rude (October 19): Weevils less numerous than they were a year ago.

Mississippi. C. Lyle (October 28): Destroyed practically all late squares on cotton plants. Adults as numerous as last year at this time in all parts of the State except the Delta, with very few reported from the extreme northern part.

E. W. Dunnam, et al. (October 19): Population in Washington County is light. Weevils to go into hibernation are far below normal. (October 26): No more than 10 percent of a normal population expected to go into hibernation.

Louisiana. R. C. Gaines, et al. (October 12): Number taken on field flight screens in Madison Parish for the week ended October 11, 1940, totaled 10, as compared with 36 in 1939, and 21 in 1938. (October 26): Number taken on field flight screens in Madison Parish for week ended October 25, totaled 65, as compared with 18 in 1939, and 19 in 1938.

Oklahoma. C. F. Stiles (October 29): Generally distributed over State. Damage light except in extreme southeastern portion of State where damage was less than usual.

PINK BOLLWORM (Pectinophora gossypiella Saund.)

Texas. L. W. Noble (October 19): Green boll infestation counts made during first part of the week in the area above the mouth of the Conchos River, Presidio County, were comparable to records made last year. In 7 identical fields the average infestation for 1940 was 40 percent, ranging from 3 to 90 percent, bolls per plant averaging 1.34, and ranging from 0.5 to 5.2, and larvae per acre averaging 15,086, ranging from 106 to 50,436, as compared with average infestation of 71 percent in 1939, ranging from 39 to 100 percent, average bolls per plant 1.57, ranging from 0.3 to 5.1.

and larvae per acre averaged 29,363, ranging from 5,119 to 65,250. In 11 fields in the vicinity of Presidio during the week ended October 19, 1940, bolls infested averaged 67 percent, ranging from 2 to 100 percent, bolls per plant averaged 1.07, ranging from 0.3 to 2.2, and larvae per acre averaged 38,538, ranging from 546 to 126,825.

Egypt. A. H. Rosenfeld (August 5): Pink bollworm, together with spiny bollworm, Earias insulana Boisdu., was responsible for an infestation of about 3 percent in the cotton varieties Sakel (long-staple), Giza 7 (medium), and Ashmouni and Zagora (uppers), and about 5 percent in the other long-staple Maaraq, as against some 2 percent for all these varieties during the corresponding period last year.

COTTON LEAFWORM (Alabama argillacea Hbn.)

South Carolina. F. Sherman and W. C. Nettles (October 26): Small localized late outbreak occurred in southern section.

Georgia. P. M. Gilmer, et al. (October 5): Complete stripping occurred in most untreated sea-island fields in Tift, Lowndes, Echols, Cook, and Berrien Counties. Upland cotton seems to have suffered much less from leafworm than sea-island.

Mississippi. E. W. Dunnam, et al. (October 17): One larva, about half grown, found in the genetics garden in Washington County. (October 22): One moth found in Leland, Washington County.

Louisiana. R. C. Gaines, et al. (October 5): A few fields in Madison Parish were defoliated in the last 2 weeks.

Missouri. L. Haseman (November 1): During October in central Missouri there was a rather light flight of this moth where it was observed feeding on apple mummies and decaying fruit.

Oklahoma. C. F. Stiles (October 29): Caused very little damage in the State.

Texas. L. W. Noble (October 5): New generation of moths emerging in Presidio County. Little damage expected.

COTTON LEAF PERFORATOR (Bucculatrix thurberiella Busck)

Arizona. H. G. Johnston (October 23): Many cotton fields practically defoliated in several areas of the Salt River Valley during late August and early September. Earliest and most severe injury ever recorded in this area.

EGYPTIAN COTTON WORM (Prodenia litura F.)

Egypt. A. H. Rosenfeld (June 29): Spreading progressively everywhere during first half of month. Egg masses abundant after irrigation and in heavily manured fields. Hand picking of eggs carried out vigorously and hatching took place only in very limited areas. No damage to crop. (July 17): Percentage of infestation much higher than at this time last year. Hand-picking of egg masses was diligently carried on, but owing to exceptional

number and distribution, hatching took place on a few thousand scattered acres, mostly in the northern provinces, although there was some hatching also, in the southern Delta and Middle Egypt.

FOREST AND SHADE - TREE INSECTS

BAGWORM (Thyridopteryx ephemeraeformis Haw.)

Virginia. L. A. Hetrick (October 15): A number of adult males were attracted to caged bagworm cocoons at West Point.

Maryland. E. N. Cory (October 28): Present on evergreens at Prince Frederick and at Bennings.

Mississippi. C. Lyle (October 28): Specimens received from Prentiss County, where they were feeding on juniper. Reports of injury received from Lee and Union Counties and from the northwestern district.

Kansas. H. R. Bryson (September 24): Reported as abundant on cedars in one locality near Erie.

Texas. R. K. Fletcher (October 10): Present on cedar in Harris County.

FALL WEBWORM (Hyphantria cunea Drury)

Mississippi. C. Lyle (October 28): Reported as injuring willows in Bolivar County, and pecan in Lee County. Injury very noticeable in northern half of State, and in some cases pecan and persimmon trees have been practically defoliated.

Arkansas. W. J. Baerg (October 25): Exceedingly numerous in central and southern parts of the State, and comparatively thin in northern counties.

Nebraska. H. D. Tate (September 17): Reported from Douglas County.

TWIG GIRDLER (Oncideres cingulatus Say)

Virginia. H. G. Walker and L. D. Anderson (October 28): Moderately abundant on hickory and pecan at Norfolk.

WALKINGSTICKS (Phasmidae)

Missouri. L. Haseman (November 1): With severe killing frosts delayed, walkingsticks were feeding and ovipositing in central Missouri until the middle of October.

BEECH

BEECH BLIGHT APHID (Prociphilus imbricator Fitch)

Virginia. H. E. Clark (September 8): Specimens collected on beech at Woodford (Det. by P. W. Mason.)

BLACKBERRY PSYLLID (Trioza tripunctata Fahr.)

Virginia. H. E. Clark (September 8): Specimens collected on beech at Woodford. (Det. by P. W. Oman.)

BEECH SCALE (Cryptococcus fagi Baer.)

Maine. H. B. Peirson (October 15): Spreading rapidly throughout eastern and northern Maine, and large areas of beech died this year. This was followed by a nectria disease and trees in some sections look as if coated with snow.

BIRCH

A CASE BEARER (Coleophora salmani Heinr.)

Maine. H. B. Peirson (October 10): Almost completely defoliated birch stands in Winter Harbor, Addison, and Jonesboro this fall. Insects now in overwintering cases.

A PLANTBUG (Ischnorhynchus resedae Panz.)

Massachusetts. E. P. Felt (October 23): Specimen received from Hopkinton. Very abundant on birch. Presumably feed upon the catkins and usually abundant in moist, wet places.

New York. E. P. Felt (October 23): Specimens received from New York Botanical Garden, New York City.

BOXELDER

BOXELDER BUG (Leptocoris trivittatus Say)

Pennsylvania. E. J. Udine (October 23): Abundant in some sections of Carlisle

Wisconsin. C. L. Fluke (October 22): Not as numerous as in past years. Reported from Washington and Adams Counties.

Iowa. C. J. Drake (October 24): Very abundant this fall, with What Cheer, Greene, Des Moines, Aplington, Emmetsburg, and Ames representing heavy centers of infestation.

H. E. Jaques (October): Light to moderate infestations in various counties in the eastern part of the State and in Union County, in the western part of the State.

Missouri. L. Haseman (November 1): Seemingly due to the open fall, fewer complaints than usual of this bug coming into houses have been received.

Nebraska. H. D. Tate (October 15): Reported as annoying around houses and other buildings from Merrick, Gage, Cass, Burt, and Lancaster Counties during the period from September 16 to October 15.

Kansas. H. R. Bryson (October 27): Hibernating bugs more abundant than last year.

Utah. G. F. Knowlton (October 14): Extremely annoying in classrooms and offices of school buildings at Logan. (October 21): Reported as annoying in homes and school buildings during last 10 days.

CATALPA

CATALPA SPHINX (Ceratomia catalpae Bdv.)

Ohio. E. W. Mendenhall (October 2): Leaves stripped on catalpa trees in Marion and Hardin Counties by second brood.

ELM

EUROPEAN ELM SCALE (Gossyparia spuria Mod.)

Nebraska. H. D. Tate (October 5): Reported from Hall County.

Utah. G. F. Knowlton (October 21): Damaged a number of elm trees at Brigham, Logan, and Ogden this season.

ELM SCURFY SCALE (Chionaspis americana Johns.)

Oklahoma. F. A. Fenton (October 28): Reported on elm at Muskogee.

FIR

A BARK APHID (Dreyfusia piceae Ratz.)

Maine. H. B. Peirson (October 10): Causing death of large number of balsam fir trees in Washington and Hancock Counties.

HACKBERRY

HACKBERRY NIPPLE GALL (Pachypsylla celtidis-mamma Riley)

New Jersey. E. P. Felt (October 23): Reported as considerably abundant on hackberry in the Orange area.

HEMLOCK

A LOOPER (Ellopia athasaria Walk.)

Connecticut. R. B. Friend (October 18): Five-acre hemlock stand at Woodridge heavily infested, defoliation being most severe in upper parts of crown of trees 30 to 50 feet high. Heavily defoliated area less extensive in somewhat larger stand in Branford.

LARCH

LARCH CASEBEARER (Coleophora laricella Hbn.).

Vermont. L. D. Casey (September 27): Heavy infestation observed near Cabot, in northeastern Vermont. Most foliage badly discolored from the feeding.

PALES WEEVIL (Hylobius pales Hbst.)

New Hampshire. J. V. Schaffner, Jr. (October 1): Twigs seriously injured by feeding of adult, received from Hillsboro, from a plantation set out on recent cut-over pine land. Larch planted in old fields not damaged.

LINDEN

NORWAY MAPLE APHID (Periphyllus lyropictus Kess.)

Ohio. E. W. Mendenhall (October 21): Found to be serious on European linden in Ashtabula, the leaves being covered with honeydew.

AN APHID (Myzocallis tiliae L.)

Utah. G. F. Knowlton (October 21): Moderately severe infestations observed at Logan and Brigham.

LOCUST

LOCUST TWIG BORER (Ecdytolopha insiticiana Zell.)

Mississippi. C. Lyle (October 28): Small black locust trees, apparently injured by the locust twig borer, were received from Yalobusha County early in the month.

MAPLE

A GEOMETRID (Ennomos subsignarius Hbn.)

Massachusetts. S. W. Bromley (October 16): Caterpillars defoliating red maple, in a swamp at Wenham. (Det. by H. W. Capps.)

OAK

RED-HUMPED OAK CATERPILLAR (Symmerista albifrons A. & S.)

Connecticut. A. De Caprio (October 11): White oaks on 2 acres at Bloomfield almost completely defoliated. Red and black oaks lightly infested.

E. P. Felt (October 23): Somewhat abundant on oak at Simsbury.

A RIBBED COCOON MAKER (Bucculatrix ainsliella Murt.)

Vermont. J. Pruett (September 23-27): Several thousand acres of oak trees affected in the towns of Brandon, Salisbury, Middlebury, and Leicester, located on the slope of the Green Mountain range. (Det. by C. Heinrich.)

TWO-LINED CHESTNUT BORER (Agrilus bilineatus Web.)

Pennsylvania. T. J. Parr (October 23): Dying oaks along Licking Creek Drive in State forest property east of Mount Union attacked, following abnormal dry conditions a few years ago.

PUBESCENT OAK KERMES (Kermes pubescens Bogue)

Iowa. C. J. Drake (October 24): Abundant and doing considerable damage to oak trees in Des Moines.

AN OAK GALL (Andricus excavatus Ashm.)

Missouri. E. P. Felt (October 23): Specimen on Ozark black oak or blackjack received from Steelville.

OAK ROSETTE GALL (Cynips frondosa Bass.)

Massachusetts. E. P. Felt (October 23): Found to be extremely abundant on sw white oak at Easton, a large tree with a trunk diameter of 30 inches having 90 percent of the branches literally covered by the galls.

PINE

A TIP MOTH (Rhyacionia rigidana Fern.)

Virginia. L. A. Hetrick (September 15): Heavily infesting the terminal and lateral shoots of old-field stands of loblolly pines in Mathews County. Infested pines are growing in closed stands and are probably from 20 to 25 years old. Average height of trees about 30 feet. (Tentatively determined from larvae by C. Heinrich.)

INTRODUCED PINE SAWFLY (Diprion simile Htg.)

Maine. H. B. Peirson (September 23): Full-grown larvae defoliating white pine at Bar Harbor. Some larvae have spun cocoons.

RED-HEADED PINE SAWFLY (Neodiprion lecontei Fitch)

Vermont. P. B. Dowden (October 24): Heavy infestation observed in a 20-acre red pine plantation in the town of Peru, the trees being from 8 to 10 feet high. About 20 percent of the trees were infested and 10 percent were heavily fed upon.

New York. R. C. Brown (October 23): Severe attack on a 20-acre plantation of red pine on Bay Pond Road, near the town of Paul Smiths, resulted in its virtual destruction during the last season. Trees in stand are from 8 to 10 feet high, and approximately 75 percent are dead or dying.

Virginia. L. A. Hetrick (October 15): Groups of second-generation larvae commonly observed on young loblolly pines in New Kent, King William, and King and Queen Counties.

A SAWFLY (Neodiprion americanum Lench)

Virginia. L. A. Hetrick (October 14): First emergence noted in infested areas in King and Queen and King William Counties. Oviposition in needles of Pinus taeda noted same day. Heavy emergence of adults did not occur until October 23 and 24 owing to weather conditions.

A WEEVIL (Cossonus corticola Say)

Florida. J. R. Watson (October 22): Injuring pines in Polk County.

A TWIG BORER (Pityophthorus sp.)

New Hampshire. J. V. Schaffner, Jr. (October 19): Heavy infestation found in Scotch pine on Honey Brook State Forest at Acworth, in southwestern New Hampshire. Over 50 percent of the 20- to 22-year-old trees on an 8-acre plantation are seriously affected. Most twigs on some trees observed to be brown on August 23. (Det. by M. W. Blackman.)

WHITE PINE CONE BEETLE (Conophthorus coniperda Schwarz)

New York. E. P. Felt (October 23): Specimen sent in from Southampton, Long Island, and associated with somewhat severe injury to hard pine tips.

PINE BARK APHID (Pineus strobi Htg.)

Maryland. E. N. Cory (October 21): Present on white pine in Bethesda.

A PINE SCALE (Matsucoccus gallicolus Morrison)

Pennsylvania. T. J. Parr (October 23): Injury to pitch and short-leaf pine plots at Mont Alto and Mount Union in general increased slightly over what it was in 1939.

POPLAR

A PYRALID (Euzophera ostricolorella Hulst)

Maryland. E. N. Cory (October 21): Present on tulip trees at Bowie.

COTTONWOOD BORER (Plectrodera scalator F.)

Utah. G. F. Knowlton (October 21): Injured poplars in several northern localities.

GALL APHIDS (Pemphigus spp.)

Utah. G. F. Knowlton (September 26): Pemphigus populicaulis Fitch and P. populitransversus Riley have been causing moderately severe damage to Bolleana poplar, many leaves having fallen prematurely on some trees at Trenton, Clinton, Bountiful, and Centerville.

A RIBBED PETIOLE GALL (Ectoedemia populella Busck)

Ohio. E. W. Mendenhall (October 18): Rather numerous on aspen trees at Ashtabula.

REDBUD

LEAFHOPPERS (Cicadellidae)

Kansas. (September 25): Unusually abundant. Injury is severe enough on some leaves to give the tree a brownish appearance.

SPRUCE

EUROPEAN SPRUCE SAWFLY (Gilpinia polytoma Htg.)

Maine. H. B. Peirson (October 10): Reported as very serious in all of the spruce regions in the State. Increase over last year in many sections, and in others there has been a decrease, owing in part to a large hold-over of cocoons in the ground.

BLACK-HEADED BUDWORM (Peronea variana Fern.)

Maine. H. B. Peirson (September 26): Light infestation noted on spruce at Winter Harbor.

FIR SAWFLY (Neodiprion abietis Harr.)

Maine. H. B. Peirson (September 2): Full-grown larvae attacking balsam fir and blue spruce at South Portland. Many cocoons on trees.

SYCAMORE

PIGEON TREMEX (Tremex columba L.).

Nebraska. H. D. Tate (October 5): Infested sample of wood from a sycamore tree sent in from Merrick County.

TUPELO

SOURGUM CASE CUTTER (Antispila nyssaefoliella Clem.)

New Jersey. C. W. Collins and R. R. Whitten (September 27): Observed mining leaves of Nyssa sylvatica rather abundantly in Ocean County.

WALNUT

WALNUT HUSK FLY (Rhagoletis completa Cross.)

Missouri. L. Haseman (November 1): Has been unusually abundant in walnut husks throughout October, with a number of adults emerging in the laboratory around the middle of the month.

I N S E C T S A F F E C T I N G G R E E N H O U S E

A N D O R N A M E N T A L P L A N T S

M E A L Y B U G S A N D S C A L E I N S E C T S (Coccidae)

New York. W. G. Bodenstein (October 1): Specimen of a mealybug, Rhizococcus falcifer Kunck., received from Cornell University. Reported as causing considerable injury in the conservatory, the principal host plants being the palms, Howea forsteriana and Howea belmoreana, and the croton, Codiaeum variegatum. (Det. by Louise M. Russell.)

South Carolina. F. Sherman and W. C. Nettles (October 26): Several specimens of Icerya purchasi Mask, received from eastern South Carolina.

Florida. J. R. Watson (October 22): Snow scale has been particularly abundant on mulberries, persimmons, and hibiscus; sent in from Orlando on African violets.

Mississippi. C. Lyle (October 28): Damage by I. purchasi reported as increasing along the Gulf coast due to the scarcity of Vedalia beetles.

Arizona. C. D. Lebert (October 14): Phenacoccus gossypii Towns. & Ckll. collected on poinsettia and coleus plants and Pseudococcus citri Risso on geranium in greenhouses at Prescott and Phoenix. (Det. by Louise M. Russell.)

California. E. O. Essig (October 3): Saissetia hemisphaerica Targ. found on Eugenia myrtifolia at Berkeley. Reporter noticed this insect for the first time in this region out of doors. Common on greenhouse ferns.

AZALEA

AZALEA LACEBUG (Stephanitis pyrioides Scott)

New York. M. D. Leonard (September 25): Badly infested azalea leaves submitted from East Elmhurst, Long Island. One dozen large plants reported as equally infested, and same plants were moderately infested last season. (Det. by H. G. Barber.)

Mississippi. C. Lyle (October 28): Specimens of insect and injured leaves received from Jones and Lauderdale Counties. General and heavy infestations reported from Meridian district.

AZALEA SCALE (Eriococcus azaleae Const.)

Mississippi. C. Lyle (October 28): Infested plants observed in Grenada, Lincoln Pike, and Walthall Counties, and in the Meridian district.

A SCALE (Pseudaonidia paeoniae Ckll.)

Mississippi. C. Lyle (October 28): Specimens taken from azalea in Hancock County.

CAMPHOR

CAMPHOR THRIPS (Liothrips floridensis Watson)

Mississippi. T. F. McGehee (October 28): Causing injury to young growth in the coast counties.

CHRYSANTHEMUM

MEALYBUGS (Pseudococcus spp.)

Maryland. E. N. Cory (September 30): Present on chrysanthemum at Linthicum.

Mississippi. C. Lyle (October 28): Undetermined species reported as numerous in greenhouses in Jackson County. Less numerous in Meridian district.

Nebraska. H. D. Tate (September 28): P. citri Risso found infesting chrysanthemum plants in Chase County.

DAYLILY

A NOCTUID (Xanthopastis timais Cram.)

Kentucky. Mrs. M. R. Jacobs (October 2): Specimens taken from bulbs of Hemerocallis occidentalis at South Carrollton. (Det. by C. Heinrich.)

EUONYMUS

EUONYMUS SCALE (Chionaspis euonymi Comst.)

Maryland. E. N. Cory (October 15): Present on euonymus at Hagerstown.

Mississippi. C. Lyle (October 28): Injury to euonymus plants reported from the Meridian district and from Yazoo County.

Texas. R. K. Fletcher (October 1): Euonymus leaves infested with a scale were received. Reported from the entire eastern half of the State, some of the infestations being very heavy. (Det. by Louise M. Russell.)

GLADIOLUS

GLADIOLUS THRIPS (Taeniothrips simplex Morison)

Georgia. T. L. Bissell (October 26): Caused considerable damage this year at Griffin.

JUNIPER AND CEDAR

A TWIG BORER (Phloeosinus cristatus Lec.)

Nebraska. H. D. Tate (October 16): Infested cedar twigs sent in from Douglas County on September 17, with report that trees were being severely damaged. Similar damage to cedar trees reported in the same county on September 23, and from Franklin County on September 19.

JUNIPER WEBWORM (Dichomerus marginellus F.)

Maryland. E. N. Cory (October 1): Present on juniper at Frederick.

JUNIPER SCALE (Diaspis carueli Targ.)

Maryland. E. N. Cory (October 15): Present on juniper at Baltimore.

NARCISSUS

NARCISSUS BULB FLY (Merodon equestris F.)

Utah. G. F. Knowlton (October 14): Narcissus bulbs 70 percent infested in a garden at Logan.

Washington and Oregon. C. F. Doucette (October 16): Heaviest infestation since the initiation in 1934 of an annual infestation survey. Survey covered 35 planting stocks in the principal narcissus-producing areas of Oregon and Washington. Heaviest infestation observed was 24.2 percent. Average infestation of plantings in Washington was 4.89 percent, and in Oregon 7.71 percent. The weighted average for the combined area was 5.88 percent. Highest general average previously recorded was 4.33 percent in 1936.

ORCHID

ORCHID WEEVIL (Diorymerellus laevimargo Champ.)

California. E. O. Essig (October 8): Adults considerably injuring orchid flowers in greenhouse at Berkeley.

PRIVET

LILAC BORER (Podosesia syringae Harr.)

District of Columbia. H. V. Wester (October 9): Larvae boring in stems of privet hedge in Rock Creek Park, Washington.

VIRGINIA CREEPER

ACHEMON SPHINX (Pholus achemon Drury)

Massachusetts. E. P. Felt (October 23): Reported as abundant on Virginia creeper at Stockbridge.

INSECTS ATTACKING MAN AND
DOMESTIC ANIMALS

MAN

MOSQUITOES (Culicinae)

South Carolina. S. Crosswait (September 4): Number of Aedes bimaculatus Coq. collected in heavily wooded section of Charleston County, about 4 miles from the city of Charleston, and near an area which is quite marshy and floods during wet seasons. Six specimens were collected along with large numbers of A. tormentor D. and K. and A. infirmatus D. and K., as well as Psorophora ciliata F. Reported by King and Bradley as being collected very seldom and as never having been recorded in South Carolina.

Florida. G. H. Bradley and B. V. Travis (October 24): A. sollicitans Walk. and A. taeniorhynchus Wied. have decreased in abundance in the eastern part of Volusia County since the end of September. Very little annoyance during October.

G. H. Bradley (September 30): Mosquito infestation greater this quarter (July 1 to September 30) in Volusia County than last (April 1 to June 30) but considerably below the same period in 1939: Average daily densities of the three principal pest species, A. taeniorhynchus, A. sollicitans, and P. columbiae D. and K., as measured by laboratory light trap, were 53.8 for July, 103.1 for August, and 72.3 for September, as compared with the following respective 1939 averages: 312.4, 242.3, and 219.1.

Louisiana. S. W. Simmons (October 14): About 30 specimens per person along highway east of Slidell. Native reported that 5 major flights had occurred this season.

Texas. W. G. Bruce (October 31): Not especially numerous or annoying during month at Dallas.

Iowa. C. J. Drake (October 24): Anopheles punctipennis Say moderate to very abundant throughout the State, and A. quadrimaculatus Say light to moderate in scattered sections throughout the State. A. walkeri Theob. present in Cerro Gordo, Hamilton, Dubuque, Dickinson, Monona, Poweshiek, Muscatine, and Louisa Counties. A. maculipennis Meig. present in Osceola, Allamakee, Butler, and Sac Counties in the northern part of the State, and in Polk, Scott, and Louisa Counties in the southern part of the State.

Kansas. H. R. Bryson (September 25): More abundant at Manhattan than last fall.

Alaska. A. Brugger (September 17): Mosquitoes have disappeared completely at Kodiak.

A SANDFLY (Culicoides melleus Coq.)

Florida. G. H. Bradley and B. V. Travis (October 24): Very abundant and troublesome at New Smyrna Beach and Coronado Beach during the middle of October, reaching a maximum on the night of October 21.

A GNAT (Chaoborus astictopus D. and K.)

California. H. H. Stage (September 30): Emergence at Clear Lake 25 percent greater than last year, occurring every day from May 1 to September 30. Over 3 times as many larvae were taken in lake-bottom samples during the period June 10 to September 10 as during the same period last year, owing to favorable weather conditions in May and June, and oviposition was frequent and heavy.

AMERICAN DOG TICK (Dermacentor variabilis Say)

Massachusetts. C. N. Smith (September 30): All stages active in July at Vineyard Haven. Declined in abundance during August and had largely ceased activity by the end of September.

BROWN DOG TICK (Rhipicephalus sanguineus Latr.)

Wisconsin. F. C. Bishopp (October): Several specimens were taken in residence in Fond du Lac and Milwaukee. These constitute our first record from Wisconsin.

Missouri. F. C. Bishopp (October): Specimens were submitted from two infestations in St. Louis.

Texas. F. C. Bishopp (October 21): Reported as less abundant than usual, although it is troublesome in and around Dallas. Not so numerous on dogs and in homes in the Oak Cliff area as in north and east Dallas.

FUSS CATERPILLAR (Megalopyge opercularis A. & S.)

Maryland. E. N. Cory (October 7): Present in Hagerstown.

Florida. J. R. Watson (October 22): Reported annoying to persons coming in contact with it.

Alabama. J. M. Robinson (October 7): Present at Monroeville.

Mississippi. C. Lyle (October 28): One specimen received from Stone County.

CATTLE

SCREWORM (Cochliomyia americana C. & P.)

Florida. W. E. Dove (October 20): Few cases as far west as Gadsden County during the summer; about 100 cases in Union County, 4 or 5 in Hamilton County, about 200 in Charlotte County, and very few cases in Polk County during September. (October 30): Incidence for September was reported as being lower than for similar months of previous years. Most important

in the western half of the peninsular portion of Florida between Sumter and Lee Counties, where 200 to 250 cases were estimated in many counties. About 250 cases reported in a small area in Saint Johns and Bradford Counties. Few cases also reported from Dade, Broward, Palm Beach, Lake, Nassau, Hamilton, Madison, Taylor, Gadsden, and Escambia Counties. Negative reports received from most of the counties of western Florida.

Texas. E. C. Cushing (October 7): Numerous infestations reported by ranchmen in Menard and vicinity during September. Rapid decline in abundance of flies and incidence infestation owing to cool weather during first week in October. Same situation has prevailed generally over the Edward Plateau section.

F. C. Bishopp (October 18): Some trouble reported in the vicinity of Telegraph, although cases are not so numerous as a few weeks ago.

H. H. Stage (September 30): Status trap at Uvalde took 666 screwworms during the quarter (July 1 to September 30), the peak catch of 188 being taken during period ended September 30. Peak and total catch taken in this trap were highest in 5 years for the same period. The total catch in the Camp Wood status trap for the quarter was exactly the same as for the Uvalde trap, and the peak was in the period ended September 30. More specimens were taken in 1937 and 1938 than this year. All other traps operated through the quarter took far more than either of the status traps.

California. E. C. Cushing and W. L. Barrett (September 18-30): The screwworm appeared about July 1 in Tehama and Shasta Counties, causing a rather high incidence in sheep, cattle, and pigs. Cases not so severe as normally encountered in Texas. One female reported in a fly trap in a laboratory located considerably west of the Sacramento Valley. Appears to be first record in that section.

J. Wilcox (October 14): Reported that every cow in a dairy at Anaheim Orange County, which came fresh this summer was attacked, and that every calf was attacked one or more times in the navel. Bag boils on milk cows were also attacked, as well as brands. Two castrated pigs were infested three times.

A. W. Lindquist (September 30): Great deal more numerous this year at Clear Lake. Species first taken in the first half of June, and increase gradually until in the latter half of September, when it accounted for 52 percent of the total blowflies.

HORN FLY (Haematobia irritans L.)

Florida. W. E. Dove (October 11): About 300 to 400 present on some dark-colored cows at De Funiak Springs, and an average of about 100 flies on other cattle.

Mississippi. S. W. Simmons (October 15): About 300 specimens per head on cat at Pascagoula.

Oklahoma. W. G. Bruce (September 30): Percentage of horn flies as determined by a sample of 500 flies from cattle fly trap on a ranch at Waurika is 94.6, as compared with 3.4 for Stomoxys calcitrans L., and 0.2 for Cochliomyia macellaria F. (October 30): Infestations estimated from 1,200 to 2,000 per head at Waurika.

Texas. E. C. Cushing (September 13 to October 3): At Menard the average number of flies per animal dropped from 108 on September 13 to 86 on October 3.

E. W. Laake (October 29): Infestations on range and dairy cattle at Palestine, Anderson County, ranged from 300 to 800, with an average of approximately 500 per head. (October 30): Infestations on Hereford cattle in the vicinity of Jacksonville ranged from 500 to 1,500, averaging about 700 per animal.

W. G. Bruce (October 31): Infestations on cattle in the vicinity of Dallas ranged from 200 to 500 per head.

STABLEFLY (Stomoxys calcitrans L.)

Florida. W. E. Dove (October 11): Averaged about 25 per animal with about three times this number on dark animals at De Funiak Springs. (October 17): Range from none to about 40 at Panama City, averaging about 14 per head.

S. W. Simmons (September-October): Much less abundant than usual along west coast this season, owing to high degree of natural control by tides, which inundated shore deposits of bay grasses, not thrown above the normal high-tide mark by summer-storm tides.

Kansas. H. R. Bryson (September 25): Caused considerable annoyance to livestock during latter part of August.

Oklahoma. W. G. Bruce (October 31): Abundant during month.

Texas. F. C. Bishopp (October 18): Observed causing considerable annoyance to cattle along the Nueces River and on the edge of the Edwards Plateau from Barksdale to Rock Springs, the number of flies per animal during the afternoon ranging from 20 to 200. (October 31): Slight increase at Dallas during last 2 weeks.

CATTLE GRUBS (Hypoderma spp.)

Texas. E. C. Cushing (October 3): Average of 1.3 grubs per animal (range 0 to 10) on 33 cattle examined at Menard.

HORSE

HORSE BOTFLY (*Gasterophilus intestinalis* Deg.)

Mississippi. C. Lyle (October 28): Specimen received from Oktibbeha County.

Texas. R. Melvin (September 30): Large numbers of eggs oviposited on a horse at the Experiment Station at Menard during last week in September.

F. C. Bishopp (October 22): Flies are active in the area from Uvalde to Menard. Most horses observed were rather heavily infested with eggs, the number per animal often running into many thousands and the eggs occurring on the shoulders, flank, and neck, as well as on the legs.

HORSEFLIES (*Tabanus* spp.)

Florida. W. E. Dove (October 10): Two specimens of *T. americanus* Forst. observed on animals at Panama City. Single specimen of *T. lincola* F. found feeding on cattle at Panama City today.

POULTRY

STICKTIGHT FLEA (*Echidnophaga gallinacea* Westw.)

Texas. R. K. Fletcher (October 6): Present on chickens in Limestone County.

FOWL TICK (*Argas miniatus* Koch)

Texas. R. K. Fletcher (October 15): Present in Hidalgo County.

MISCELLANEOUS ANIMALS

BROWN WINTER TICK (*Dermacentor nigrolineatus* Pack.)

Florida. E. B. Blakeslee (October 15): First seasonal occurrence of engorged ticks was noted on sheep at Bonifay, Holmes County.

Texas. H. E. Parish (September 30): Examination of 26 horses on 2 ranches at Menard known to be infested showed negative results.

HOUSEHOLD AND STORED-PRODUCTS INSECTS

TERMITES (Isoptera)

Maryland. E. N. Cory (October 18): Present in houses at Towson.

Iowa. C. J. Drake (October 24): Reported as doing damage to dwellings in Elkhader, Davenport, Glenwood, Keokuk, Belle Plaine, Denver, and Des Moines.

Nebraska. H. D. Tate (October 16): *Reticulitermes flavipes* Koll. from Hall and Dodge Counties on October 7 and 10, respectively.

H. R. Bryson (October 28-29): Swarmed out in large numbers following a rain on October 28. Normal injury reported, with frequent reports of damage to growing trees.

ANTS (Formicidae)

Florida. E. A. Back (September 12): Wasmania auropunctata Roger received from Miami. (Det. by M. R. Smith.)

Mississippi. C. Lyle (October 28): Solenopsis xyloni McCook reported as destroying newly planted garden seed in Jackson County and causing annoyance in Durant district. Iridomyrmex humilis Mayr troublesome in some parts of the Gulf coast district, in the Durant district, and in the southwestern district in towns where no control measures were applied last year.

Missouri. L. Haseman (November 1): Lasius interjectus Mayr reported as swarming in central Missouri during October.

Kansas. H. R. Bryson (October 1): Pogonomyrmex occidentalis Cress. reported as abundant and damaging alfalfa in a locality near Beverly. (September 20): Camponotus spp. reported as abundant in a small grove of old catalpa trees at Parsons, causing considerable annoyance to occupants of the dwelling and yard.

New Mexico. P. Simmons (August 6): Crematogaster spp. present in great numbers on large spherical light globes at a tourist camp at the mouth of the canyon leading into Carlsbad Cavern. Tops of some of the globes, which were on pillars about 2 feet high, were completely covered at 9 p. m.

California. P. Simmons (October 11): Peach limbs reported as having been attacked by Solenopsis xyloni var. maniosa Wheeler after having been brought into laboratory east of Fresno. Inner bark was eaten away, leaving only a thin outer shell. (Det. by M. R. Smith.)

BROWN-BANDED COCKROACH (Supella supellectilium Serv.)

Mississippi. C. Lyle (October 28): Specimens sent in from Hinds County the latter part of September.

Missouri. E. A. Back (November 4): Specimens received from house in St. Louis.

Oklahoma. F. A. Fenton (October 28): Reported at Lawton.

GERMAN COCKROACH (Blattella germanica L.)

General. E. A. Back (September-November): Specimens received September 27 from Lynchburg, Va.; September 28 from Pueblo, Colo.; October 24 from Tulsa, Okla.; November 3 from Edinburg, Va.; November 4, from Whiteford, Md.

Mississippi. J. Milton (October 28): Numerous in residences in Hinds County.

POWDER POST BEETLES (Lyctus spp.)

Wisconsin. C. L. Fluke (October 22): Many reports received from Marinette, Rusk, Washington, Dodge, and Brown Counties.

Idaho. J. C. Evenden (September 18): Specimens from stored wood of apple trees at Burley received. (Det. by W. S. Fisher.)

DRUG STORE WEEVIL (Stegobium paniceum L.)

California. R. E. Campbell (October 18): Reported as appearing in large numbers in two houses at Alhambra. Dog biscuit was source of infestation in one case. (Det. by E. A. Back.)

TISSUE PAPER BUG (Thylodrias contractus Mots.)

Michigan. E. I. McDaniel (October 22): Collected at Grand Rapids. New to Michigan. (Det. by E. A. Back.)

BOOKLOUSE (Troctes divinatorius Mull.)

New York. E. A. Back (September 4): Specimens from Niagara Falls. (Det. by A. B. Gurney.)

Wisconsin. E. A. Back (October 3): Found on floors, walls, and attic of house, at Menasha. (Det. by A. B. Gurney.)

California. G. H. Kaloostian (October 17): Present in all samples of raisins examined from four vineyards in Fresno County. (Det. by A. B. Gurney.)

ALMOND MOTH (Ephestia cautella Walk.)

New Jersey. H. C. Donohoe (October 10): Cereal dog food purchased at Trenton early in summer was heavily infested with larvae. Before the discovery full-grown larvae had migrated from the bag in numbers. Adults emerging about house at rate of several daily for the last month.

TOBACCO MOTH (Ephestia elutella Hbn.)

Virginia. S. B. Fenne (October 11): Very light infestation in the Danville area, as compared with last year.

GRAIN WEEVILS (Curculionidae)

Ohio. T. H. Parks (October 28): Seriously infesting oats at Columbus harvested by a combine and testing 15-percent moisture at harvest time. Oats threshed from the shock on same farm and stored under same conditions is free from weevils.

FOREIGN GRAIN BEETLE (Cathartus advena Waltl.)

Illinois. W. P. Flint (October 22): Very abundant in corn bins in northern Illinois. Caused no damage from feeding, but heating and subsequent molding of corn occurred where there were very large numbers.

A BEETLE (Typhaea stercorea L.)

Wisconsin. C. L. Fluke (October 22): Reported in grain in Monroe County that was heating. Apparently feeding upon mold that had developed.

EUROPEAN GRAIN MOTH (Nemapogon granella L.)

Maryland. E. A. Back (September-October): Garden beans badly injured by Acanthoscelides obtectus Say found heavily infested with the European grain moth as a secondary pest. Infestation active and moths were maturing during September and October.

VARIED CARPET BEETLE (Anthrenus verbasci L.)

General. E. A. Back (September-October): Specimens received September 12 from Roy E. Campbell, Los Angeles, Calif.; September 30 from Massapequa, N. Y.; October 8 from Lima, Ohio; October 10 from Seattle, Wash.; on October 18 from Richmond, Va.; October 19 from Kansas City, Mo.; October 22 from Salem, Ill.; October 22 from Worcester, Mass.; October 24 from Detroit, Mich.; October 24 from Seattle, Wash.; on October 29 from St. Louis, Mo.

FURNITURE CARPET BEETLE (Anthrenus vorax Wth.)

General. E. A. Back (November 1): Specimens received late in August from upholstery and furnishings of S. S. Helena at Norfolk, Va. Ship outfitted 2 to 3 years ago at Brooklyn Navy Yard and insects first observed during February 1939, while ship was en route from South America to New York City; damaging loom duster brushes at Opelika, Ala., on September 23; destructive to fabrics at Charlotte, N. C., on September 26; eating holes in fabrics of all kinds in household-goods storage warehouse in Miami, Fla. on November 1.

CARPET BEETLE (Anthrenus scrophulariae L.)

New York. E. A. Back (October): Found infesting boxes of books stored in New York City and shipped to Washington, D. C., early in October.

Massachusetts. E. A. Back (September): Many larvae taken in September from house in Webster.

FUNGUS BEETLE (Alphitobius piceus Oliv.)

North Carolina. E. A. Back (October 10): Specimens received from Charlotte where they were reported to be hiding in folds of blankets stored in wooden cases.

BAT BUG (Cimex pilosellus How.)

Pennsylvania. E. A. Back (September and October): Infesting house in Perkasio and spreading from attic bat roost to other parts of house, during September and October.

A YELLOW JACKET (Vespula pennsylvanica Sauss.)

California. D. B. Mackie (November 1): Present from Lake Almanor in Plumas County to Great Bear and Arrowhead Lakes in Los Angeles County, and at intermediate points, such as from Silver Lake in Amador County to Huntington Lake in Fresno County.

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THE FIELD STATUS OF PARASITES OF THE EUROPEAN CORN BORER AT THE CLOSE OF THE 1939 SEASON

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Surveys to determine the current status of parasites of the European corn borer were conducted in the fall of 1939 at a time when the seasonal relationship between the host and parasite had reached equilibrium. The sampling method utilized consisted of collecting a unit number of living borers and borers killed by parasites in the field prior to collection. This unit number was approximately 100, except in certain collections where the adequacy of a smaller number was being tested. The location of the fields from which samples were to be taken was determined in most instances by the use of polar coordinate or transect designs centering at the release point to be examined. The total number of larvae collected in the Lake States and Eastern States areas was 30,384. Summaries of the results of observations in both areas are given in tables 1 and 2.

Table 1. Parasitization of borers collected in Lake States area in October 1939

State and Locality	County	Parasites recovered			
		Borers : observed:	Lydella griseocens :	Eulophus viridulus :	Chelonus annulipes
		Number	No. : Percent	No. : Percent	No. : Percent
<u>Michigan:</u>					
Columbus Township	St. Clair	523:	0: --	0: --	0: --
Erie Township	Monroe	554:	86: 15.5	3: 0.5	0: --
Lake St. Clair Shore	---	867:	0: --	0: --	0: --
<u>New York:</u>					
Adams Township	Jefferson	299:	0: --	0: --	0: --
<u>Ohio:</u>					
Adams Township	Lucas	308:	9: 2.9	0: --	13: 4.2
Damascus Township	Henry	1,144:	0: --	3: 0.3	0: --
Evaluation Survey	Lucas	2,907:	144: 5.0	4: 0.1	0: --
Jerusalem Township	do.	3,044:	317: 10.4	12: 0.4	0: --
Lake Erie Shore	---	608:	0: --	0: --	0: --
Marion Township	Hancock	538:	0: --	0: --	0: --
Perkins Township	Erie	561:	213: 38.0	1: 0.2	0: --
Perry Township	Wood	592:	0: --	2: 0.3	0: --
Richland Township	Logan	378:	0: --	0: --	0: --
Webster Township	Wood	273:	0: --	2: 0.7	0: --
Total	---	12,596:	769: --	27: --	13: --

Table 1.---Parasitization of borers collected in Lake States area in October 1939---Continued

State and locality	County	Parasites recovered										Total para- sitized borers
		Aplomya :No. :Percent:	Panzeria :No. :Percent:	Leborychus :No. :Percent:	Undeter- mined :Percent:	prismatic :No. :Percent:	mined :No. :Percent:	prismatic :No. :Percent:	mined :No. :Percent:	prismatic :No. :Percent:	mined :No. :Percent:	
Michigan:												
Colurus Township--	St. Clair	3: 0.6	1: 0.2	0:	0:	1: 0.2	5: 1.0					
Eric Township----	Monroe	1: 0.2	0:	0:	0:	0:	90: 16.2					
Lake Saint Clair Shore --		17: 2.0	0:	0:	0:	2: 0.2	19: 2.2					
New York:												
Adams Township----	Jefferson	2: 0.7	0:	1: 0.3	0:	0:	3: 1.0					
Ohio:												
Adams Township----	Lucas	2: 0.6	1: 0.3	0:	0:	0:	25: 8.1					
Danascus Township--	Henry	3: 0.3	3: 0.3	0:	0:	0:	9: 0.8					
Evaluation Survey--	Lucas	9: 0.3	0:	0:	0:	2: 0.1	159: 5.5					
Jerusalem Township:	do.	6: 0.2	3: 0.1	0:	0:	3: 0.1	341: 11.2					
Lake Erie Shore----		6: 1.0	2: 0.3	0:	0:	0:	8: 1.3					
Marion Township----	Hancock	1: 0.2	0:	0:	0:	0:	1: 0.2					
Perkins Township--	Erie	0:	0:	0:	0:	0:	214: 38.1					
Perry Township----	Wood	0:	0:	0:	0:	0:	2: 0.3					
Richland Township--	Logan	2: 0.5	0:	0:	0:	0:	2: 0.5					
Webster Township----	Wood	1: 0.3	0:	0:	0:	0:	3: 1.1					
Total-----		53: --	10: --	1: --	8: --	881: --						

Table 2.--Parasites recovered in the Eastern States area, fall of 1939, summary

State and locality	County	Parasites recovered															Total
		Borers:	Increo-	Lydella:	Macro-	Che-	Bassus:	Leborr-	Unde-								
		ob-	late	grises-	centrus	lonus	agi-	ychus	ter-								
		served:	punc-	cens	gift-	annu-	lis	prisma-	mined								
		toria			cens	lipes											
		Number:	No.:	%	No.:	%	No.:	%	No.:	%	No.:	%	No.:	%	No.:	%	
Connecticut:																	
E. Hartford Twp.	Hartford	6,317:	551:	8.7:	157:	2.5:	(1):	-	7:	0.1:	5:	0.7:	0:	0:	3:	0.4:	723: 11.4
Massachusetts:																	
Evaluation Survey	Middlesex	3,135:	334:	10.6:	15:	0.5:	0:	0:	0:	0:	5:	0.2:	8:	0.3:	0:	0:	362: 11.6
Tranton area		3,973:	25:	0.6:	181:	4.6:	420:	10.6:	100:	2.8:	3:	0.1:	2:	0.1:	4:	0.1:	735: 18.5
New Jersey:																	
Atlantic Township	Monmouth	856:	19:	2.2:	29:	3.4:	0:	0:	0:	0:	0:	0:	0:	0:	0:	0:	48: 5.6
Brick Township	Ocean	96:	0:	0:	5:	5.2:	(1):	-	0:	0:	0:	0:	0:	0:	0:	0:	5: 5.2
Burlington Township	Burlington	1,241:	2:	0.2:	19:	1.5:	1:	0.1:	8:	0.6:	0:	0:	0:	0:	0:	0:	30: 2.4
Virginia:																	
Franktown Township	Northampton	567:	0:	0:	3:	1.4:	(1):	-	0:	0:	0:	0:	0:	0:	0:	0:	8: 1.4
Lee Township	Accomac	1,603:	0:	0:	115:	7.2:	(1):	-	0:	0:	0:	0:	0:	0:	0:	0:	115: 7.2
Total		17,788:	931:	5.29:	421:	115:	13:	10:	7:	226:							

1/Species not released at point indicated.

Status of the Parasites as Determined by the 1939 Surveys

Lydella stabulans var. griseus R. D.--This tachinid was the most abundant of the three species of exotic parasites recorded in the Lake States area in 1939. However, contrary to results of previous years no increase was shown at any point. At Erie Township, Monroe County, Mich., and at Perkins Township, Erie County, Ohio, the percentage of parasitization remained approximately equal to that of 1939, or about 16 and 38 percent, respectively, at the two points. It appears that equilibrium with the host was attained by this parasite in 1938 following releases at Perkins Township, Erie County, Ohio, in 1928 and at Erie Township, Monroe County, Mich., in 1932. The survey in Oregon and Jerusalem Townships in Lucas County, Ohio, conducted to obtain data on the extent to which the parasite dispersed inland from marshland showed that as the distance from the shore increased the percentage of parasitization decreased rapidly. The average parasitization in strips 1 mile wide from the Lake Erie shore line inland is given in the following tabulation.

Strip	Parasitization Percent
1	30.8
2	13.3
3	0.8
4	0.1

The highest percentage of parasitization in any collection was 63.9.

Collections along the Lake Erie shore from the Huron River to Cleveland and near the Lake St. Clair shore from Detroit to St. Clair River showed that L. griseus was not present in those areas in sufficient numbers to be recovered by the means utilized.

In the Eastern States area L. griseus was recovered at all points surveyed. From the collections made in Middlesex County, Mass., it was recovered in somewhat larger numbers than in 1938 but was still comparatively scarce there. It continued its increase in the southeastern Massachusetts district and parasitization of the borers observed at the close of 1939 averaged 4.6 percent. It also continued to disperse, adding approximately 325 square miles to its known habitat.

This dipterous parasite was recovered from 9 towns in the vicinity of Hartford, Conn. Its distribution at this point is shown on map 1, where it may be noted that borer parasitization was highest northwest and west of the point of liberation which was at the center of the area represented on the map. This was also the case in 1938. That this westward dispersion is probably significant may be readily shown by an inspection of the parasitization figures. Only 7 collections (19 percent of the 37 collections) made east of the release point produced L. griseus. In all of these the rate of parasitization by this fly was very low and all but 1 of the 7 were located within 2 1/2 miles of the release point. Of the 34 collections made west of the release point, 26 (76 percent) gave L. griseus and the parasitization was comparatively high, especially

in the territory southwest of the city of Hartford.

L. grisescens was found to be well established at Atlantic, Monmouth County, and Brick, Ocean County, N. J. At the Burlington, N. J., parasite release point it was found to be well established and spreading rapidly from the point where a small number of the adults were first released in 1939.

In Virginia, L. grisescens had not increased in 1939 but continued to be the only exotic parasite of the borer present in that region. The average parasitization by this parasite was 7.2 percent at Lee Township, Accomac County, and 1.4 percent at Franktown Township, Northampton County, both locations on the Eastern Shore.

Eulophus viridulus Thoms.:--This ectophagous chalcid, which was recovered in 1938 in the Lake States for the first time in the United States, was taken at several new points in 1939. A number of these points had been examined primarily to determine the extent to which E. viridulus had become established and the current examination constituted the first observations that had been made for several years. Therefore, at such points it is not definitely known in what year the parasite reached a density measurable by the means utilized. At one point, however, Perkins Township, Erie County, Ohio, at which the parasite had been released in 1931 and 1932, examinations have been made annually but no recoveries had been made prior to 1939. It is evident, therefore, that E. viridulus remained on a maintenance basis for a number of years at such low concentrations that it was not recovered by the means utilized. An examination of eight of the points in the Lake States area at which this parasite had been released showed it to be established at six. Further evidence that the parasite had extended its range without greatly increasing in density at any point, is furnished by miscellaneous recoveries in the summer of 1939. During surveys to determine the field status of the corn borer, a colony was taken at Swanton, Ohio, about 20 miles southwest of the nearest release point, and another in Wyandotte County, about 19 miles southeast of the nearest release point at Marion Township, Hancock County, Ohio. E. viridulus was not recovered at any of the points in the Eastern area.

Inareolata punctoria Roman.:--This ichneumonid accounted for more mortality of borers at the points surveyed in the eastern area than any other parasite. It was reared from 35 of the 36 collections taken in Middlesex County, Mass., and showed an average parasitization of 10.6 percent with 23.9 percent of the borers in 1 collection being parasitized.

At the Hartford, Conn., survey district, parasitization of the borer by I. punctoria averaged 14.1 percent in the territory within 1 1/2 miles of the release point. From this central portion to the perimeter of the survey, parasitization of the borer by this ichneumonid gradually decreased and in the outer ring, 1 mile wide and 6 1/2 miles from the release point, parasitization was only 4.1 percent. In general, the rate of parasitization decreased as the distance from the point of release increased. However, I. punctoria was reared from all but three of the collections made in the outer portion of the surveyed area and this fact plus the parasitization (4.1 percent) at the outer limits of the surveyed territory indicates that this parasite is present beyond the limits of its distribution as shown on map 2.

I. punctoria was found to be well established at the more recent liberation point at Atlantic, N. J., where parasitization by it had reached 2.2 percent. Initial establishment and maintenance were shown at the Burlington, N.J. parasite-colonization point, where it was released in 1938. This parasite was not recovered on the Eastern Shore of Virginia nor at any point in the Lake States area.

Macrocentrus gifuensis Ashm.:--In the 1939 survey M. gifuensis was found to be present in quantity only in southeastern New England, but the data from this area indicated that this polyembryonic ichneumonid was the most abundant parasite acting on the borer. It averaged 10.6-percent parasitization of all borers observed at the close of 1939 in the southeastern New England area, as compared to an 8.0-percent average at the close of 1938. One collection shows a parasitization of 52.4 percent and 17 additional collections each averaged parasitization of the borers of 20 percent or higher by this introduced parasite. It was reared from 61, or 68.5 percent, of the sample collections made the above-mentioned area in 1939, as compared to only 49 percent of those obtained at the close of 1938. M. gifuensis continued to disperse and occupied new territory toward the east and south but no evidence was obtained to indicate further dispersion westward.

Chelonus annulipes Wesm.:--This braconid was recovered at the point in Adams Township, Lucas County, Ohio, where it had become initially established in 1937 and where it had been liberated to determine its reaction to the tendency of the borer to produce two generations per year in that locality. The survey showed that the parasite had increased over 280 percent in abundance. In one of the collections parasitization by this species was 12.6 percent.

This egg-larval parasite was released in numerous locations in the Connecticut River Valley in the spring of 1939 and six of these releases were made within the territory surveyed in the fall of 1939. Parasite field-status collections were made at random without regard to Chelonus annulipes liberation point; yet this parasite was recovered from five widely scattered collections. Such general initial establishment had been anticipated, as the releases were well synchronized with the presence of host eggs, a condition which, it is known, usually promotes recovery during the season of release.

Native species:--Four species of native parasites, Bassus agilis Cresson, Labrorhynchus prismaticus Norton, Aplomya caesar Ald., and Panzeria penitalis Coq., were recovered in 1939. Their combined parasitization was unimportant.

Summary

In the Lake States area the only parasitization of the borer of possible economic importance at the close of the 1939 season was confined to areas adjacent to marshland in the vicinity of southwestern Lake Erie and was produced by a single species of parasite, the exotic tachinid Lydella stabulans var. grisescens.

The ectophagous chalcid parasite, Eulophus viridulus, was found to be widespread throughout several counties near Toledo, Ohio, but concentrations were low at all points.

Chelonus annulipes was recovered at only one point in the Lake States area.

In the Eastern States area, complexes of several parasites were found at a number of points. In Middlesex County, Mass., Inareolata punctoria, Lydella grisescens, and native parasites were responsible for a parasitization of 11. percent, with I. punctoria the predominant species. In southeastern New Engl a parasitization of 18.5 percent was observed. The polyembryonic braconid Macrocentrus gifuensis was the chief parasite in this area, with L. grisescen I. punctoria, and native species being present, their abundance being in the order given.

At Hartford, Conn., Inareolata punctoria, Lydella grisescens, Chelonus annulipes, and native parasites were recovered. Here I. punctoria was the mo abundant species, with L. grisescens second in importance.

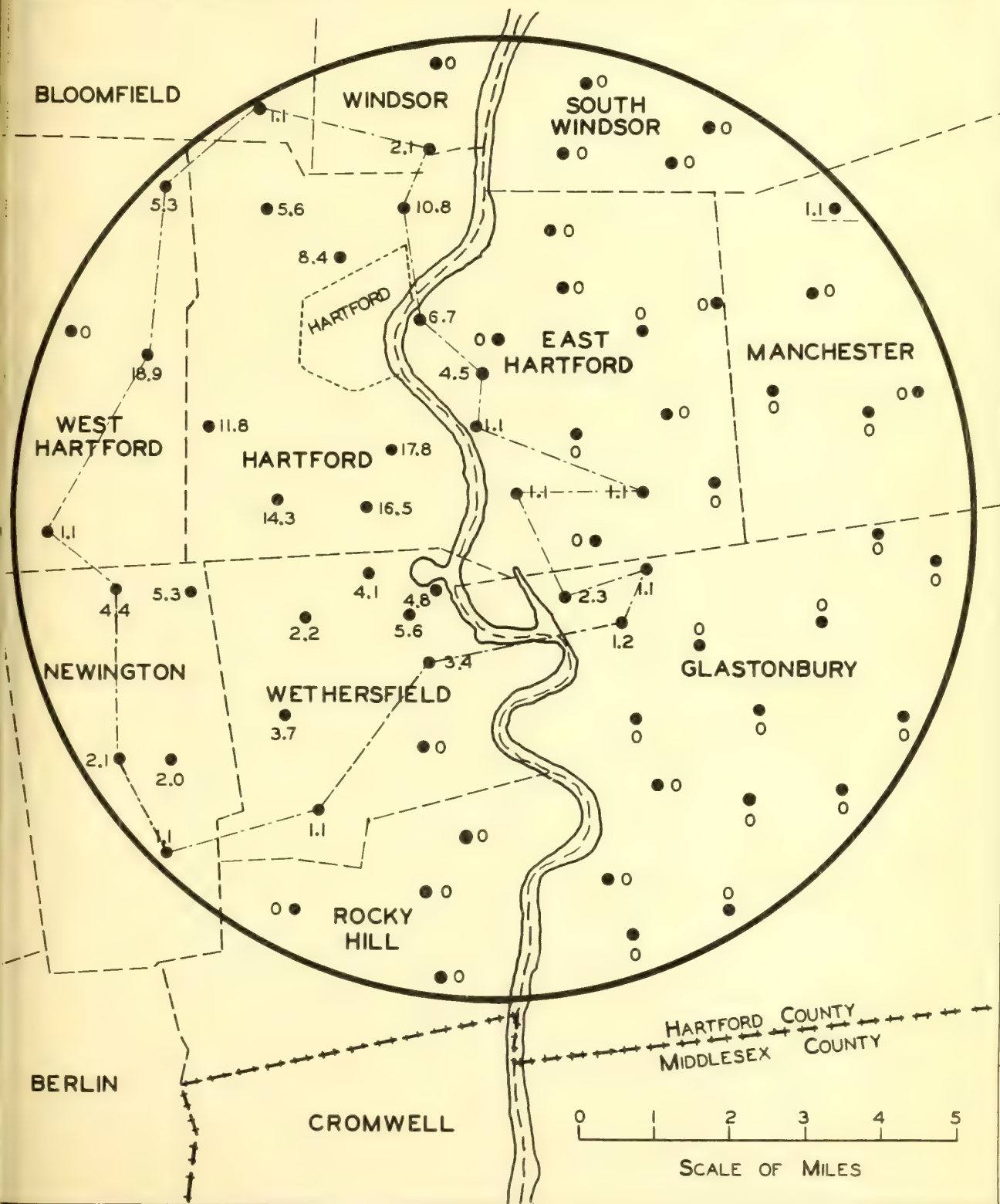
At Burlington, N. J., four species of exotic parasites were recovered bu none were abundant at this recently established release point.

Inareolata punctoria and Lydella grisescens were recovered in small numb at several other points in the Eastern States area.

MAP I.

TERRITORY COVERED IN THE EUROPEAN CORN-BORER PARASITE FIELD STATUS SURVEY IN THE HARTFORD, CONN. DISTRICT, FALL OF 1939.

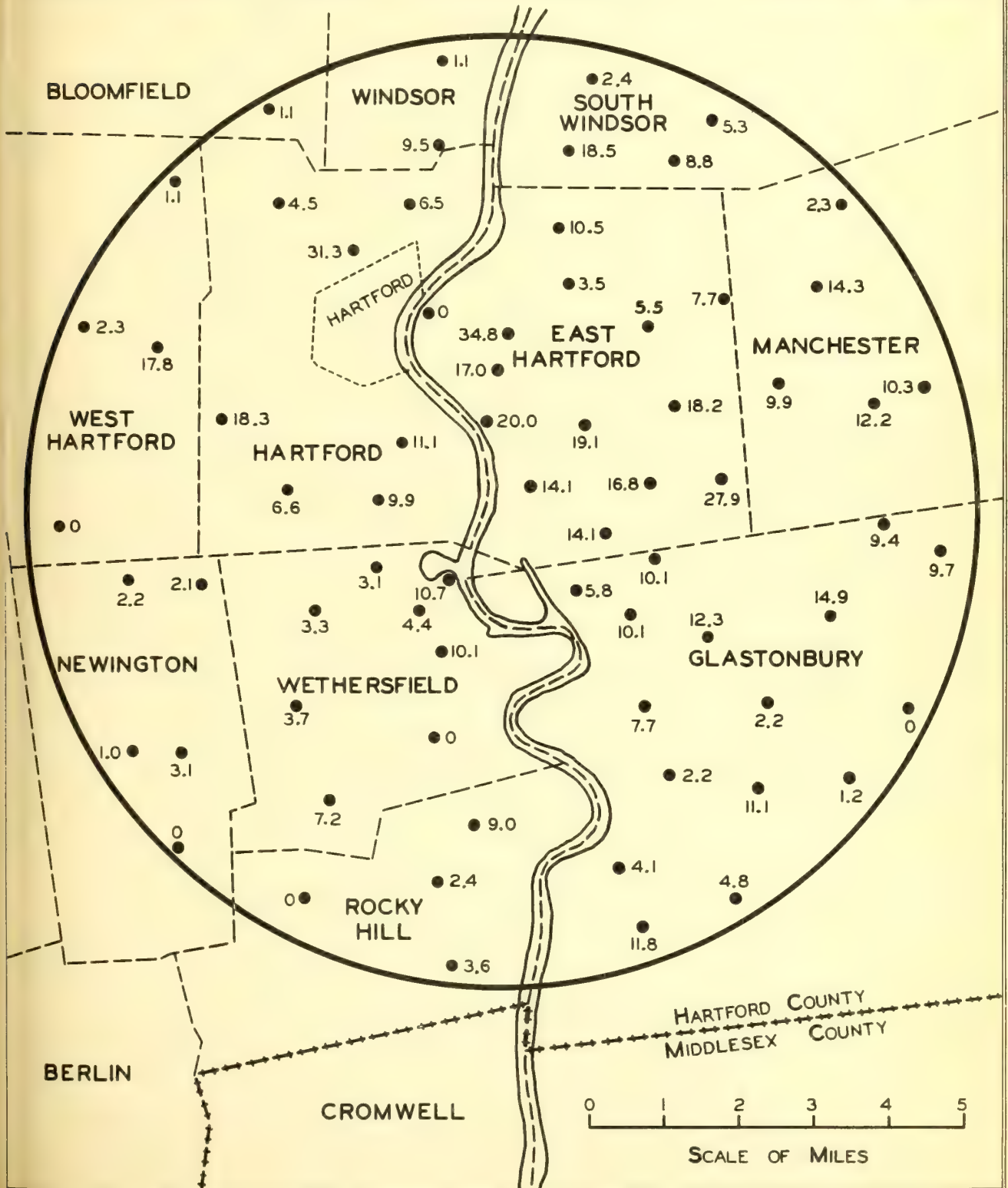
SURVEY LIMITS ——— • COLLECTION POINTS
FIGURES INDICATE PERCENT PARASITIZATION BY *L. GRISESCENS* R.&D.



MAP 2.

TERRITORY COVERED IN THE EUROPEAN CORN-BORER PARASITE FIELD STATUS SURVEY IN THE HARTFORD, CONN. DISTRICT, FALL OF 1939.

SURVEY LIMITS ——— • COLLECTION POINTS
 FIGURES INDICATE PERCENT PARASITIZATION BY *I. PUNCTORIA ROMAN*.





COLONIZATION OF EUROPEAN CORN BORER PARASITES IN 1940^{1/}

By C. A. Clark and W. G. Bradley, associate entomologists,
Division of Cereal and Forage Insect Investigations
Bureau of Entomology and Plant Quarantine
United States Department of Agriculture

The 1940 colonization program for corn borer parasites emphasized the recolonization of the egg-larval parasite Chelonus annulipes Wesm. in the Hudson River Valley in New York State and the distribution of the larval parasite Macrocentrus gifuensis Ashm. in Massachusetts, Rhode Island, Connecticut, eastern New York, and New Jersey.

One hundred fourteen colonies, totaling 112,711 individuals of C. annulipes were liberated during 1940. The size of colonies ranged from 739 to 2,247 adults, including both sexes, but most colonies consisted of approximately 1,000 parasites. Of the liberations made, 110 colonies or 109,213 adults were released in the Hudson River Valley in Albany, Columbia, Dutchess, Greene, Orange, Rensselaer, and Ulster Counties, N. Y., where work with this parasite was concentrated this season. It was planned to release a line of colonies of this parasite extending approximately 80 miles on either side of the Hudson River, with the individual colonies spaced at 2-mile intervals. It was believed that this procedure would provide an optimum opportunity for the establishment, dispersion, and rapid attainment of maximum effectiveness of the parasite. In general, this plan was carried out but lack of host material, unsuitable topography, and other factors made some modification of the program necessary in actual practice. Availability of the parasite in larger numbers than anticipated made it possible to make a second series of releases on both sides of and several miles back from the Hudson River. The territory from Newburg to Cohoes (north of Albany) on the west side of the river and from Beacon to Troy on the east side, and extending up to 10 miles from the river, was colonized with C. annulipes during 1940.

Three colonies, totaling 1,251 adults, of C. annulipes were released in Atlantic Township, Monmouth County, N. J. One colony of 2,247 adults of this parasite was released in Berlin Township, Erie County, Ohio, as a further test of this parasite in the western part of the area infested by the European corn borer.

The releases of C. annulipes during the 1940 season were perfectly timed to synchronize with host development in the release territory. It is known that the adults of this species live for at least 10 days or more under normal

^{1/}For previous releases of European corn borer parasites in the United States see Insect Pest Survey Bul., Sup. to No. 9, vs. 18 and 19, 1938 and 1939.

field conditions and, consequently, that releases should be made to coincide with the start of host oviposition. The first releases of this parasite were made on the afternoon of June 4 and the first host eggs were found in the field the following morning. Releases continued (in the Hudson River Valley) until June 16 by which date the peak of host egg deposition had been reached but large numbers of corn borer eggs were still being deposited nightly. The small number of releases in other localities were also well synchronized with the presence of host eggs.

The 109,213 adults of C. annulipes released in the Hudson River Valley were reared at the Toledo, Ohio, corn borer laboratory, Ephesia kuehniella Zell. being utilized as a host for this purpose. Chelonus adults for the release in Ohio were also from this source. The adults of this parasite released in New Jersey were obtained incidental to the domestic procurement of Macrocentrus gifuensis. Table 1 lists the releases of C. annulipes made during 1940.

Thirty-nine releases, totaling 78,072 adults, of the polyembryonic braconid Macrocentrus gifuensis were made during the 1940 season. This parasite was released on a county basis, in most cases limited to 1 colony of approximately 2,000 adults, inclusive of both sexes, per county. All 8 counties in Connecticut received liberations of this parasite. In Massachusetts releases were made in 6 of the 11 counties in which this parasite is not known to be established. The 3 counties in Rhode Island in which this parasite is not found or is scarce, received releases. In eastern New York 10 counties, including Suffolk County, Long Island, as well as counties in Hudson River Valley, received releases, and extra releases were made in Columbia and Rensselaer Counties where the borer has recently been particularly abundant. In New Jersey 8 counties received releases of this parasite, including most of the counties in this State not previously colonized in which borers have been destructive. No releases of this parasite were made south of New Jersey, owing to the comparatively low populations of the host at the time releases were made at the other points.

One retest release of M. gifuensis was made in Adams Township, Lucas County, Ohio, where a multiple-generation strain of the borer is now building up in a locality in which the borer was previously limited to a single-generation cycle. It is believed all releases of M. gifuensis accomplished during the 1940 season were synchronized with host presence in stages favorable to attack by this parasite.

All M. gifuensis adults released were reared at the Moorestown, N. J., corn borer laboratory from host material collected in southeastern Massachusetts in the fall of 1939. This imported parasite has increased to such an extent in that locality that, so far as known, it is now more abundant than in any European or Oriental country from which it was first imported. Table 2 lists the releases of M. gifuensis made in the United States during 1940.

The adults of Chelonus annulipes, which were reared at Toledo, Ohio, were shipped from that city by railway express utilizing ice-cooled, insulated

shipping boxes.^{2/} Of the 110,000 adults of this parasite shipped in this way during the 1940 season, only 787 died en route from the shipping point to time of release in the field, a mortality of only 0.7 percent.

A total of 78,815 adults of M. gifuensis for release in the United States were handled during the 1940 season. From the time of collection to release in the field, 743 of these adults died, a mortality of only 0.9 percent, an unusually low mortality for this fragile species.

Incidental to a study of corn borer parasite status in the field, a small number of parasites were reared late in the season. These adult parasites were shipped to Canada for release in the corn borer infested area around Quebec. The parasites were shipped during the period August 12-19, inclusive. A total of 6,005 Macrocentrus gifuensis and 330 adults of Inareolata punctoria Roman were in the consignments sent. The mortality in these shipments was 2.7 percent for the former species and 2.1 percent for the latter.

SUMMARY

A total of 190,783 European corn borer parasites were released in the United States during 1940. Of this number 112,711 were adults of the egg-larval parasite Chelonus annulipes Wesm. and 78,072 were adults of the braconid Macrocentrus gifuensis Ashm. Most of the adults of the former species were laboratory-reared, utilizing Ephestria kuehniella Zell. as the host. M. gifuensis was obtained from corn borer larvae collected in southeastern Massachusetts, where this imported parasite is well established and abundant.

Releases of C. annulipes were concentrated in the Hudson River Valley, N. Y. Releases of M. gifuensis were made in southern New England, in eastern New York, including Long Island, and in New Jersey. A test release was made in northern Ohio.

Only 0.8 percent mortality was experienced in the handling of 192,313 parasites from emergence in the laboratories to liberation in the field in the various States.

Consignments of Inareolata punctoria Roman and Macrocentrus gifuensis for release near Quebec, Canada, totaled 6,335 adult parasites.

^{2/} Shipping containers approximately as described in Bureau of Entomology and Plant Quarantine ET Circular 77.

Table 1.--Liberations of *Chelonus annulipes* Wasm. in the United States during 1940

State and county	Township	Date of release	Colonies : Number	Adults : released Number
New Jersey:				
Monmouth-----	Atlantic	June 5-21:	3	1,251
Subtotal (N. J.)----	--	--	3	1,251
New York:				
Albany-----	Bethlehem	June 6-7 :	7	6,968
	Cocynans	6 :	2	1,993
	Colonie	7 :	7	6,953
	New Scotland	7 :	1	998
Columbia-----	Claverack	14 :	2	1,993
	Clermont	11-16:	3	2,742
	Germantown	11 :	1	999
	Ghent	13 :	2	1,999
	Greenport	11-16:	4	3,493
	Kinderhook	12-13:	8	7,945
	Livingston	16 :	3	2,245
	Stockport	11 :	2	1,999
	Stuyvesant	11-14:	9	8,976
Dutchess-----	Clinton	8 :	1	989
	E. Fishkill	16 :	1	748
	Fishkill	8 :	4	3,983
	Hyde Park	8 :	5	4,979
	La Grange	16 :	2	1,498
	Poughkeepsie	8-15:	4	3,722
	Red Hook	11-16:	2	1,746
	Rhinebeck	8 :	1	992
	Wappinger	8-16:	2	1,743
Greene-----	Catskill	4-5 :	4	4,840
	Corsackie	5-6 :	3	2,993
	New Baltimore	6 :	1	998
Orange-----	Montgomery	15 :	2	1,498
Rensselaer-----	E. Greenbush	13 :	3	2,985
	Schodack	11-14:	4	3,991
Ulster-----	Esopus	4 :	2	2,463
	Hurley	5-15:	2	1,733
	Kingston	4 :	1	1,234
	Lloyd	4 :	2	2,444
	Marbletown	15 :	2	1,995
	New Paltz	15 :	1	748
	Plattekill	7 :	1	997
	Rosendale	15 :	1	746
	Saugerties	4-5 :	4	4,930
	Ulster	4-5 :	4	4,915
Subtotal (N. Y.)----	--	--	110	109,213
Ohio:				
Erie-----	Berlin	18 :	1	2,247
Subtotal (Ohio)----	--	--	1	2,247
Total-----	--	--	114	112,711

Table 2.--Liberations of *Macrocentrus gifuensis* Ashm. in the United States during 1940

State and county	Township	Date of release	Adults released
			Number
Connecticut:			
Fairfield-----	Stratfield	June 25	1,993
Hartford-----	E. Hartford	26	1,979
Litchfield-----	Litchfield	27	1,993
Middlesex-----	Haddam	25	1,991
New Haven-----	Milford	25	1,994
New London-----	Gales Ferry	25	1,997
Tolland-----	Tolland	26	1,995
Windham-----	Pomfret	26	1,992
Subtotal (Conn.)-----	--	--	15,934
Massachusetts:			
Essex-----	Danvers	June 28	1,953
Franklin-----	Bernardston	28	1,968
Hampden-----	Agawam	28	1,984
Hampshire-----	Hadley	28	1,977
Middlesex-----	Concord	28	1,947
Worcester-----	Charlton	26	1,994
Subtotal (Mass.)-----	--	--	11,823
New Jersey:			
Atlantic-----	Egg Harbor	June 23	1,996
Bergen-----	Paramus	20	1,996
Camden-----	Clementon	18	1,972
Gloucester-----	Washington	18	1,966
Mercer-----	Washington	19	1,979
Middlesex-----	Monroe	19	1,988
Monmouth-----	Atlantic	19	1,992
Do.-----	do.	July 3	1,527
Ocean-----	Brick	June 19	1,981
Subtotal (N. J.)-----	--	--	17,397
New York:			
Albany-----	Colonie	June 20	1,983
Columbia-----	Kinderhook	22	1,972
Do.-----	do.	22	1,973
Dutchess-----	Hyde Park	22	1,995
Greene-----	Coxsackie	20	1,988
Orange-----	Montgomery	20	1,989
Rensselaer-----	E. Greenbush	22	1,986
Do.-----	Schodack	22	1,988
Saratoga-----	Malta	20	1,997
Schenectady-----	Glenville	20	1,987
Suffolk-----	Riverhead	27	1,569
Ulster-----	Marbletown	20	1,986
Subtotal (N. Y.)-----	--	--	23,413

Table 2.--Liberations of *Macrocentrus gifuensis* Ashm. in the United States during 1940--(Continued)

State and county	Township	Date of release	Adults released
			<u>Number</u>
<u>Ohio:</u>			
Lucas-----	Adams	June 29	3,537
Subtotal (Ohio)-----	--	--	3,537
<u>Rhode Island:</u>			
Kent-----	Coventry	25	1,993
Providence-----	Gloucester	25	1,989
Washington-----	Richmond	25	1,986
Subtotal (R. I.)-----	--	--	5,968
Total-----	--	--	78,072

POPULATIONS AND HOST PREFERENCES OF JUNE BEETLES
IN SOUTHERN WISCONSIN IN 1940By T. R. Chamberlin, Lee Seaton, J. A. Callenbach, and C. L. Fluke^{1/}

Introduction

The cooperative studies herein reported are a continuation of those begun at the University of Wisconsin in 1935. The studies from 1935-1938 inclusive were reported in Supplement to No. 4 of Volume 18 of the Insect Pest Survey Bulletin and in Supplement to No. 3 of Volume 19. No report was submitted for 1939 because the flight of the "Brood B" beetles that year was extremely small. The methods used in 1940 were the same as were used previously and reported on in the papers mentioned.

In 1940 large flights of the "Brood C" beetles in southern Wisconsin were for the most part confined to Lafayette, Iowa, and eastern Grant Counties with some extensions into nearby areas. The observations recorded in this account were made in five groves, one near Dane, in Dane County; one near Poynette, in Columbia County; one near Lamont, in Lafayette County; one near Linden, in Iowa County, Iowa; and one near Gays Mills, in Crawford County, Wis. The approximate location of these groves is shown in Figure 1.

Number of Beetles and Species Collected

Twenty-two collections were made between May 6 and July 6 inclusive, 6 at Lamont, 3 at Linden, 1 at Dane, 1 at Poynette, and 11 at Gays Mills. As shown in tables 1 and 2, a total of 5,068 beetles of 13 species were collected. Of these 1,061 were taken from the grove near Gays Mills and 4,007 from the other groves. The 3 predominant species, viz: Phyllophaga hirticula (Knoch.), P. rugosa (Molsh), and P. fusca (Froel.), together made up 87.41 percent of the total number of beetles collected. With the exception of the year 1936, when a large flight of P. tristis (F.) occurred in "Brood B" and P. hirticula beetles were very rare, beetles of these 3 species have been most abundant since 1934. In flights of "Brood A", however, P. rugosa has been more abundant than P. hirticula.

^{1/}Callenbach made the observations at Gays Mills; Chamberlin, Seaton, and Fluke made the observations in the other localities. This project is part of a cooperative investigation of June beetles and white grubs being conducted by the Bureau of Entomology and Plant Quarantine, of the United States Department of Agriculture and by the University of Wisconsin Agricultural Experiment Station through its department of economic entomology.

In 1940, outside the Gays Mills area and especially at Lamont and Linde where "Brood C" flight was heaviest, P. hirticula was the predominant species and comprised 50.03 percent of the 4,007 beetles collected. P. fusca, which was also abundant, amounted to 31.97 percent, and P. implicita, which ranked third, 5.96 percent.

At Gays Mills Phyllophaga rugosa was the predominant species and comprised 57.59 percent of the 1,061 beetles collected. P. fusca and P. ilicis (Knoch), which ranked second and third, comprised 26.20 and 12.25 percent, respectively, of the total number of beetles.

Host Preferences of the Beetles

Because of differences in the relative populations of the various species of beetles and in the host-plant complex, the Gays Mills locality was studied separately from the other areas and is considered separately in this paper.

Outside the Gays Mills Area

In Table 1 is a list of all beetles collected from all areas other than Gays Mills and of the host plants from which they were taken. Table 1 is identical in form with those used in the Insect Pest Survey Bulletin Supplements previously referred to. There are three entries in each space, two percentages and a number. The top percentage indicates the proportion of all beetles belonging to the species named at the head of the column, which was taken from the food plant named at the left. The lower percentage gives the proportion of the total number of beetles taken from that host plant made up of the species at the top of the column. The number located between the percentages in each space represents the number of beetles of the species named at the head of the column which were taken from the plant mentioned at the left. Host plants are listed according to the total numbers of beetles of all species collected from them, in descending order, as indicated in the vertical "Total" column. In addition to the plants shown in the tables, grape, sumac, boxelder, and other undetermined plants were examined, but no beetles were found on them.

In these areas Phyllophaga hirticula was taken from 18 kinds of plants. Hazel, bur oak, cultivated plum, and oaks of the red oak group supplied 66.91, 20.82, 2.88, and 2.49 percent, respectively, of the total number of P. hirticula beetles, or 93.11 percent. These hosts have been preferred by P. hirticula during previous years, but in some years shagbark hickory was also fed upon heavily. From observations and from the number of beetles taken by shaking, black walnut is known to be a favored host of P. hirticula but, as walnut was scarce in the areas in which the beetles were hand-picked from hosts, this preference was not shown and consequently is not indicated in the table.

Phyllophaga fusca was taken from 18 food plants also, but there was less concentration of this species on any single host than in the case of P. hirticula. Aspen, bur oak, oaks of the red oak group, and dogwood supplied 34.58, 25.84, 10.38, and 9.68 percent of the collected beetles, respectively, and together 80.48 percent.

Phyllophaga implicita (Horn) was collected from six food plants, of which aspen supplied 93.72 percent of the total.

The favored host plants of the less abundant species are shown in the tables.

Gays Mills Area

The host plants observed in the Gays Mills area and the number of beetles taken from them are listed in table 2, which is identical in form with table 1. Phyllophaga rugosa, P. fusca, and P. ilicis, the most abundant species, were each taken from 12 of the 16 listed host plants. Cultivated cherry, butternut, and shagbark hickory together supplied 83.96 percent of the total number of P. rugosa beetles and individually 54.17, 19.97, and 9.82 percent. Butternut and shagbark hickory supplied 66.91 and 16.19 percent of the total number of P. fusca beetles and hazel, shagbark hickory, and butternut 26.91, 25.38, and 12.31 percent of the total number of P. ilicis beetles. Hosts of the less abundant species are given in the table.

WISCONSIN, 1933

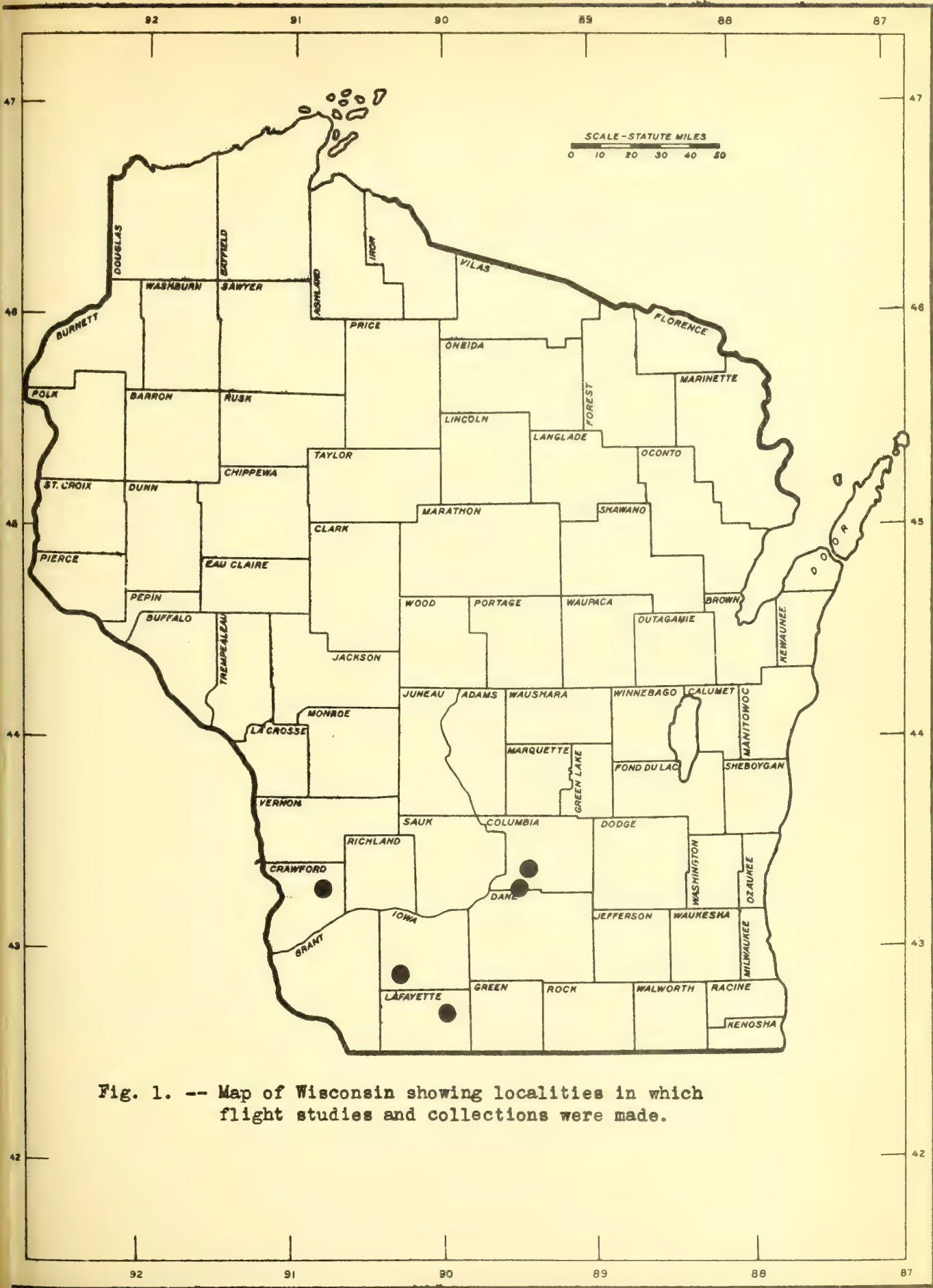


Fig. 1. -- Map of Wisconsin showing localities in which flight studies and collections were made.

Table 1

Beetles Collected in Southern Wisconsin Outside of Gays Mills Area 1940

Hosts	<i>P.hirticollis</i>	<i>P.fusca</i>	<i>P.implicita</i>	<i>P.rugosa</i>	<i>P.futilis</i>	<i>P.tristis</i>	<i>P.annia</i>	<i>P.drakii</i>	<i>P.ilicis</i>	<i>P.nitida</i>	<i>P.prunina</i>	<i>P.crenulata</i>	<i>P.balis</i>	Totals
Hazel	86.91% 1395	8.20% 106	2.09% 5	44.44% 72	60.24% 50		19.38% 8	42.11% 8	81.25% 13	90.00% 9	28.87% 2	50.00% 5	40.00% 2	41.68% 1670
Bur Oak	83.53% 434	8.29% 351	.30% 1	4.31% 1	2.99% 2	50.79% 32	.38% 1	.48% 1	.78% 1	.54% 1	.12% 1		.12% 1	100.00% 802
Aspen	20.82% 44	25.84% 351		.82% 1	2.41% 2	3.99% 2			6.25% 1					20.00% 1
Red Oak (group)	54.11% 27	41.27% 443		.12% 1	.25% 2				.12% 2					99.98% 719
Dogwood	1.29% 52	34.58% 133	93.72% 224	.62% 70	2.41% 1	39.68% 25	32.26% 10	47.37% 9	12.50% 2				20.00% 1	17.84% 719
Plum (cult.)	2.43% 1	10.38% 124	31.15% 89	.14% 2	.28% 4	8.74% 4	1.39% 2	1.25% 1	.28% 1		71.43% 5	16.67% 1		100.00% 286
White Oak	18.18% 1	46.50% 124		24.48% 2	1.23% 4		12.90% 4	5.26% 1		100.00% 1	1.75% 1	16.67% 1		3.44% 138
Rose	.05% 1	9.85% 124		1.45% 2	4.82% 4		2.90% 4	.72% 1				.72% 1		99.99% 38
Crataegus	.72% 60	89.86% 7			2.90% 4		2.90% 4	.72% 1		.72% 1				1.80% 72
Blackberry	2.88% 60	.55% 7	.42% 7		4.82% 4									100.00% 72
Gooseberry	83.33% 22	9.72% 22	1.39% 1		5.56% 1									1.27% 51
Walnut	1.06% 43	1.72% 14	.42% 1	3.09% 10	1.20% 1									100.00% 43
Cherry (wild)	43.14% 21	43.14% 9	1.96% 23	9.80% 10	1.96% 23	6.17% 2						16.67% 1		1.07% 43
Apple (crab)	1.01% 21	.70% 9		6.17% 10		3.17% 2								100.01% 38
Apple	48.84% 28	20.93% 6		23.26% 3		4.65% 3		5.26% 1				2.33% 1		.95% 38
Blackberry	1.34% 28	.47% 6			3.81% 3			5.26% 1						99.99% 38
Gooseberry	73.68% 4	15.79% 9			7.89% 7			2.63% 11						99.99% 38
Walnut	.20% 4	.70% 9	2.93% 7		8.43% 7		35.48% 11	28.95% 11						.95% 38
Cherry (wild)	10.53% 4	23.68% 9	18.42% 7		18.42% 7									100.00% 38
Apple (crab)		2.03% 26				6.35% 4								.75% 30
Apple		86.67% 29				13.33% 4								100.00% 29
Blackberry		2.26% 29												.72% 29
Gooseberry		100.00% 29												100.00% 29
Walnut	.54% 7	1.01% 13		.62% 1										.52% 21
Cherry (wild)	33.33% 11	61.90% 4		4.76% 3										99.99% 19
Apple (crab)	.53% 11	.47% 6												.42% 17
Apple	64.71% 11	35.29% 6												100.00% 17
Blackberry		.78% 10			1.20% 1									.27% 11
Gooseberry		90.91% 3			9.09% 1									100.00% 11
Walnut	.38% 8	.23% 3												.27% 11
Cherry (wild)	72.73% 1	27.27% 1												100.00% 1
Apple (crab)	.05% 1				4.82% 4									.12% 5
Apple	20.00% 1				80.00% 1									100.00% 1
Blackberry			.42% 1		1.20% 1									.05% 2
Apple (crab)			50.00% 1		50.00% 1									100.00% 1
Apple					1.20% 1									.02% 1
Blackberry					100.00% 1									100.00% 1
Walnut	.05% 1													.02% 1
Blackberry	100.00% 1													100.00% 1
Cherry (wild)		.08% 1												.02% 1
Apple (crab)		100.00% 1												100.00% 1
Apple														100.00% 1
Blackberry	.05% 1													.02% 1
Cherry (wild)	100.00% 1													100.00% 1
Apple (crab)	.05% 1													.02% 1
Apple	100.00% 1													100.00% 1
TOTALS	100.03% 2085	99.99% 1281	100.00% 239	100.00% 162	99.97% 83	99.99% 63	99.99% 31	100.00% 19	100.00% 16	100.00% 10	100.00% 7	100.01% 8	100.00% 5	99.94% 4007
	52.03%	31.97%	5.96%	4.04%	2.07%	1.57%	.77%	.47%	.40%	.25%	.17%	.15%	.12%	99.97%

Table 2

Beetles Collected in Gays Mills Area 1940

	<i>P. rugosus</i>	<i>P. fuscos</i>	<i>P. illote</i>	<i>P. impunctata</i>	<i>P. hirticornis</i>	<i>P. tristis</i>	<i>P. nitida</i>	<i>P. baileyi</i>	Totals
<u>Host</u>									
<u>Cherry (cult.)</u>	54.17% 331	5.24% 9		22.22% 4	7.69% 1	40.00% 2	35.33% 1		32.00% 348
<u>Butternut</u>	95.11% 122	2.59% 186	12.51% 16	1.15% 6	.29% 5	.57% 1	.29% 1	35.33% 1	100.00% 31.86% 338
<u>Hickory (shag bark)</u>	36.09% 9.82% 60	65.03% 16.19% 45	4.73% 25.36% 33	1.78% 30.77% 4	1.48% 30.77% 4	.29% 66.67% 2	.29% 66.67% 2	35.33% 1.39% 144	99.98% 13.57% 144
<u>Hazel</u>	41.67% 4.56% 28	51.25% 5.40% 15	22.92% 26.92% 36		2.76% 15.36% 2	20.00% 1.22% 1	35.33% 1.22% 1		7.73% 100.00% 82
<u>Elm</u>	4.09% 25	1.44% 4	3.08% 4	22.22% 4					3.43% 37
<u>Ironwood</u>	67.57% 2.62% 16	10.81% 1.44% 4	10.81% 8.46% 11	10.81% 10.81% 4					100.00% 2.92% 31
<u>White Oak</u>	51.61% 1.96% 12	12.90% .36% 1	36.48% 3.08% 4			20.00% 1			99.99% 1.70% 18
<u>Red Oak (group)</u>	66.67% 12	5.55% 1	22.22% 4	12.31% 16		5.55% 1			99.99% 1.51% 16
<u>Crataegus</u>	.98% 6	.72% 2	1.54% 2		7.69% 1				100.00% 1.04% 11
<u>Basswood</u>	64.56% .45% 3	18.18% 2.18% 6	18.18% .77% 1	5.56% 1	9.09% 16.67% 3				100.00% 1.04% 11
<u>Aspen</u>	27.27% .98% 8	54.55% 9.09% 1							100.00% 9.86% 9
<u>Dogwood</u>	66.67% 1.44% 4		3.85% 5						100.00% 9.86% 9
<u>Pignut Hickory</u>		44.44% .36% 1	56.56% 1.54% 2						100.00% 2.87% 3
<u>Larch</u>		33.33% .36% 1	66.67% .77% 1						100.00% 1.9% 2
<u>Apple</u>	.16% 1	60.00% 1	60.00% 1						100.00% 1
<u>Undetermined</u>	100.00% 1								100.00% 1
<u>Totals</u>	99.98% 611	100.02% 278	100.01% 130	100.00% 18	99.93% 13	100.00% 5	99.99% 3	100.00% 3	100.01% 1061
	57.65%	26.20%	12.25%	1.70%	1.23%	.47%	.28%	.28%	100.00%

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STATUS OF THE EUROPEAN CORN BORER IN 1940

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Distribution

In 1940 the European corn borer was found for the first time in the following counties of States previously infested: Champaign, De Kalb, Ford, Grundy, Iroquois, Kane, Kendall, Livingston, McHenry, McLean, Vermilion, and Winnebago, in Illinois; Harford in Maryland; Brown in Ohio; Essex, Isle of Wight, James City, and New Kent, in Virginia; and Columbia, Portage, Walworth, and Waushara, in Wisconsin.

^{1/} Information presented in this report was accumulated by the Bureau of Entomology and Plant Quarantine and by workers in the various States infested by the European corn borer (Pyrausta nubilalis Hbn.). The data were assembled and tabulated at the laboratory for European corn borer research, Toledo, Ohio, with W. A. Baker in charge. In 1940 the survey was conducted in 35 counties in Indiana by the State Conservation Department; in 14 counties in Maine, in 17 counties of New Jersey, and in 10 counties of Vermont, by the State departments of agriculture of those States; in 7 counties of eastern New York, including Long Island, by the New York Agricultural Experiment Station, Geneva, N. Y.; and in 7 counties of New Hampshire by the New Hampshire Agricultural Experiment Station. The agricultural experiment stations of Delaware and Maryland aided the Bureau in the survey in these two States. New county records of the European corn borer in 1940 were contributed by the Natural History Survey and State department of agriculture of Illinois, by the State departments of agriculture of Virginia and Wisconsin, and by the agricultural experiment station of Maryland. The Bureau of Entomology and Plant Quarantine appreciates the interest and cooperation of all States in which the survey was conducted and from which records of distribution were obtained in 1940.

Fall Abundance

The Bureau of Entomology and Plant Quarantine cooperated with interested States again in the fall of 1940 in a survey to determine the relative abundance of the European corn borer in corn over a considerable portion of the area infested by the insect. As a result, 3,273 cornfields were examined in 258 counties of 19 infested States, 168 of the counties being surveyed by the Bureau and 90 by the States. In each of 5 States, 2 small counties were combined and each pair treated as a single county, and in 1 State 3 small counties were grouped in this way. The survey procedure adopted in 1939 was followed in 1940 in all States except Indiana and Maine. By this method, 10 cornfields at random were sampled within each county (except in Delaware where 20 fields per county were surveyed), the count of infestation being obtained by examining 25 consecutive corn plants taken at a given distance within the field from near the mid point of its most accessible edge, and the number of borers per infested plant being determined by dissecting the first 2 plants found infested. In Indiana and Maine an average of 20 to 25 fields were surveyed in each county and the population figure for each field was based on an examination of 100 plants and the dissection of 5 or 10 infested plants. In either procedure the product of the percentage of plant infestation in a field and the average number of borers per infested plant provided a figure designated as the average number of borers per 100 plants. The population data derived in this way for the individual fields were then grouped in the calculation of county averages.

A summary by States of the data on corn borer abundance for all counties surveyed in 1940 is presented in table 1, with comparisons of the figures for 1939 and 1940 limited to the number of comparable counties included both years. In table 2 the average numbers of borers per 100 plants are given for each county surveyed in 1940 and all possible comparisons are made with similar data from 1939. Both States and counties are arranged alphabetically in the presentation of the data. In reading the tabulated data it should be noted that a zero recorded for any county indicates a population so low that no infested plants occurred within the specified counts and does not mean the complete absence of the borer. In the accompanying map shaded areas indicate the relative abundance of the European corn borer over the part of the infested area in the United States surveyed in 1940, and give the known distribution of the insect in 1940 on a county basis. Many of the unshaded counties within the border of infestation were surveyed in 1939 and, in general, found only lightly infested by the corn borer.^{2/} In the following paragraphs some of the outstanding results of the 1940 survey are discussed briefly.

The principal centers of abundance of the European corn borer in the United States in 1940 were as follows: Southeastern Michigan, including most of the "thumb" section; the northwestern quarter of Ohio; nine counties near the eastern border of Indiana; four counties on the southern edge of Lake Ontario,

^{2/} Insect Pest Survey Bul., Sup. to No. 9, v. 19: pp. 603-618. Dec. 15, 1939.

in western New York; portions of the Hudson River Valley in eastern New York; Long Island, New York; Centre and Bucks Counties, in Pennsylvania; two counties in southern Vermont and one in southwestern New Hampshire; eastern Massachusetts and Hampden County, in that State; the States of Connecticut and Rhode Island; the central part of New Jersey; southern Delaware; most of the Eastern Shores of Maryland and Virginia; Princess Anne County, on the southeastern mainland of Virginia.

The highest infestations per county in 1940 occurred in Nassau County, Long Island, N. Y., and Niagara County, N. Y., which averaged 742.2 and 709.6 borers per 100 plants, respectively. Other relatively high populations--501 to 700 borers per 100 plants--were found in Gratiot and Sanilac Counties, Mich.; Columbia and Orleans Counties, N. Y.; Fairfield County, Conn.; Burlington County, N. J.; and Accomac and Princess Anne Counties, Va.

The data show significant increases in abundance of the European corn borer in 1940 from 1939 in comparable surveyed sections of Indiana, Ohio, western New York, Long Island, N. Y., New Jersey, Delaware, Maryland, and Virginia; significant decreases in Vermont, Massachusetts, Connecticut, and Rhode Island; and no significant changes in the levels of population in Wisconsin, Michigan, Bucks County, Pa., eastern New York, New Hampshire, nor Maine. Infestation in the few counties surveyed in southeastern Wisconsin in 1940 was light, as in 1939, whereas in southeastern Michigan larval populations continued at high levels. The increases in abundance of the insect from 1939 to 1940 in the surveyed portions of Indiana and Ohio brought the populations in these States to the highest levels on record, and in the four counties surveyed along the southern edge of Lake Ontario, in western New York, the borer reached its maximum abundance for that section of the country. Although less abundant throughout New England and in eastern New York proper in 1940 than in 1939, the corn borer became much more numerous southward along the Atlantic coast from Long Island through New Jersey, Delaware, Maryland, and Virginia.

Wisconsin and Illinois.--Only a light infestation of the European corn borer--5.3 larvae per 100 plants--was found during a survey in 1940 of 6 counties in the southeastern corner of Wisconsin, indicating little change in abundance from the average of 3.3 borers per 100 plants noted in the same counties in 1939. A survey in 1940 of the 5 counties in northeastern Illinois, in which the corn borer was first recorded in 1939, showed that populations of the insect in that section were too sparse for measurement by the method employed.

Kentucky.--Four counties along the Ohio River, in northeastern Kentucky, on record as infested by the European corn borer, were surveyed in 1940. No infestation was found in 2 of the counties and only a trace of the insect in the other 2. The result was an average of only 0.3 borer per 100 plants for the 4 counties as a group.

Indiana.--The European corn borer in Indiana has steadily increased in numbers from 1938 to 1940. Within a section of 35 counties in the State, which has been intensively surveyed each year, the average number of borers per 100 plants more than doubled from 14.9 in 1938 to 34.1 in 1939, and again increased in about the same proportion, from 34.1 in 1939 to 77.4 in 1940. Significant

increases from 1939 to 1940 took place in 26 of the 35 counties surveyed in the 2 years, and the population trend in 8 other counties was in the direction of an increase. In 1940 populations averaged over 100 borers per 100 plants in each of 9 counties in the eastern part of the State, as compared with 5 counties in this category in 1939. The greatest abundance of the corn borer in Indiana in 1940 was found in Wells County, where there were 343.6 larvae per 100 plants; the 4 next most heavily infested counties--Blackford, Jay, Adams, and Allen--had populations per 100 plants of 263.8, 252.6, 246.4, and 234.5, respectively. One of the most important increases from 1939 to 1940 appeared in Wayne County, in the southeastern part of the State, where the average number of borers per 100 plants increased from 3.1 in 1939 to 101.7 in 1940.

Ohio.--In a section of northwestern Ohio, comprising 31 counties, the corn borer increased significantly in numbers from an average of 103.5 larvae per 100 plants in 1939 to 227 in 1940. Thirteen counties in the section showed significant increases in borer abundance from 1939 to 1940, while all but 1 of the remaining 18 counties displayed a trend toward increase in the same period. Populations were much higher in 1940 than in 1939 in a number of counties. Van Wert and Hancock Counties in 1940 had the highest averages found to date in Ohio--453 and 427.6 borers per 100 plants, respectively, while Paulding, Putnam, Hardin, Auglaize, Fulton, and Wyandot had populations per 100 plants averaging 393.6, 391.2, 379, 367.6, 350.4, and 309.6, respectively. In other words, 8 of the 31 comparable counties, or 25.8 percent, averaged more than 301 borers per 100 plants in 1940. Only 1 county out of the same group was infested to that extent in 1939. Ten other Ohio counties in 1940 each averaged 201 to 300 borer per 100 plants, and 6 more had populations of 101 to 200 larvae per 100 plants. In 1939, 45.2 percent of the 31 comparable counties averaged more than 101 borer per 100 plants, whereas in 1940 the percentage of counties with populations of this size was 77.4. Infestation by the borer in 8 counties in the southwestern corner and 4 in the southeastern part of the State, surveyed in 1940 only, was relatively light.

Michigan.--Within a section composed of 20 counties in southeastern Michigan, there was an average of 244.1 larvae of the European corn borer per 100 plants in 1940, as compared with 210.5 in 1939. Significant increases from 1939 to 1940 occurred in the counties of Sanilac, Macomb, Saginaw, and Livingston, while pronounced decreases were noticeable only in Ingham and Washtenaw Counties. High populations continued to be chronic in the northern portion of the "thumb," where each of 10 counties averaged more than 200, and each of 7 more than 300 borers per 100 plants in 1940, including Gratiot and Sanilac Counties with maximums for the section of 516.2 and 512 borers per 100 plants, respectively. The last 2 counties mentioned were the most heavily infested of any surveyed in 1940 in the Michigan-Ohio-Indiana area. Five other counties surveyed in Michigan in 1940 had 101 to 200 borers per 100 plants, while the remaining 5, all in the southwestern part of the section surveyed, averaged less than 73 borers per 100 plants.

Pennsylvania.--With the exception of observations in Bucks County on the southeastern border of Pennsylvania, the 1940 survey was confined to the western half of the State and to counties from most of which no data on corn borer abundance had been obtained for some years. In 30 such counties surveyed in

western Pennsylvania in 1940, the infestation was very light, no borers being found in half of them and less than 17 larvae per 100 plants in each of the other 15. In Centre County, in the center of the State, there was an average of 112.8 borers per 100 plants in 1940, and in Bucks County the average of 117 borers per 100 plants in 1940 had about the same significance as that of 142 found there in 1939. Corn borer surveys in 1939 and 1940 together covered all of Pennsylvania except a section of 10 counties in the southeastern part of the State, not yet known to be infested, and 4 neighboring counties first found infested in 1939. Sizable infestations in the 1939 and 1940 surveys in Pennsylvania were found only in Centre and Bucks Counties.

West Virginia.--Measurable populations of the corn borer were not found in any of the 10 infested counties in the northwestern corner of West Virginia, surveyed for the first time in 1940.

New York.--The corn borer was much more abundant in 1940 than in 1939 in the counties of Niagara, Orleans, Monroe, and Wayne, all located along the southern shore of Lake Ontario in western New York. There populations of the insect were higher in 1940 than in any other year on record, the average number of borers per 100 plants in this group of 4 counties having increased from 101 in 1939 to 510.2 in 1940. In Niagara County the borer populations per 100 plants averaged 709.6. On Long Island (Nassau and Suffolk Counties) there was also an increase in abundance of the borer--from 221.5 larvae per 100 plants in 1939 to 493 in 1940--being most pronounced at the western end of the island, in Nassau County, which had the maximum infestation in the country in 1940 of 742.2 borers per 100 plants, as an average for the entire county. Taken as a whole, the 9 counties surveyed in the Hudson River Valley, in eastern New York, in both 1939 and 1940 showed little change in these 2 years. An infestation of 3,850 borers per 100 plants in 1 cornfield in Columbia County in 1940 raised considerably the year's average for that county. Greene County also tended to have more borers in 1940 than in 1939. Lower populations were found in Albany County in 1940 than in 1939 and a trend toward decrease from 1939 to 1940 was apparent in Orange, Rensselaer, Saratoga, and Schoenectady Counties.

New England.--In New England populations of the European corn borer declined from 1939 to 1940, the average for the 6 States of 228.1 borers per 100 plants in 1939 dropping to 111.5 in 1940. The infestation in Maine was light in 1940, averaging 2.2 borers per 100 plants, as compared with 10.2 in 1939. In New Hampshire there was a downward trend in abundance of the insect, from 51.4 borers per 100 plants in 1939 to 34 in 1940, and significant decreases from 1939 to 1940 occurred in Vermont, Massachusetts, Rhode Island, and Connecticut. In Vermont the decrease was from 66.2 borers per 100 plants to 39.6; in Massachusetts from 496.2 to 159.1; in Rhode Island from 664.1 to 264.6; and in Connecticut from 471 to 348.4. With the exception of Bennington and Windham Counties, Vt., Sullivan County, N. H., and Hampden County, Mass., county populations of the borer exceeding 100 larvae per 100 plants were confined to the States of Connecticut and Rhode Island and to 6 counties along the coast in eastern Massachusetts. Fairfield County in Connecticut had the heaviest infestation, with 539.6 borers per 100 plants, while 3 other Connecticut Counties--Middlesex, Hartford, and New Haven--averaged 472.2, 448.4, and 393.4 borers per 100 plants, respectively. The only other county in New England with an average of more than 300 borers per 100 plants was Barnstable, in Massachusetts, with 334.

New Jersey.---The European corn borer increased appreciably in abundance in the State of New Jersey, from an average of 70.1 borers per 100 plants in 1939 to 109 in 1940, although many of the individual counties showed little significant change in the general level of their populations in the 2 years. The increase was somewhat more pronounced in the southern than in the northern half of New Jersey. Burlington and Monmouth Counties, near the center of the State with 505.4 and 387.4 borers per 100 plants, respectively, had the highest populations of the insect in New Jersey in 1940; in 1939 these 2 counties averaged 220.8 and 98.6 borers per 100 plants, respectively. Bergen County had 234 borers per 100 plants in 1940 and 4 other counties averaged 101 to 200 borers per 100 plants. The remaining 12 counties in the State together averaged 37.1 borers per 100 plants in 1940.

Delaware, Maryland, and Virginia.---Striking increases in numbers of the corn borer from 1939 were found in 1940 in Delaware and on the Eastern Shores of Maryland and Virginia. The average number of borers per 100 plants in Delaware in 1940 was 53.2, as compared with 8.9 in 1939; in the combined counties of Somerset, Wicomico, and Worcester, in Maryland, the 1939-to-1940 increase was from 5.8 to 235.3 borers per 100 plants; and in Accomac and Northampton Counties, in Virginia, the change was from 41.4 borers per 100 plants in 1939 to 512.9 in 1940. Some of the highest populations of the European corn borer known in the United States were observed in 1940 in Princess Anne County, on the mainland of Virginia, where the average number of borers per 100 plants, as determined by the survey, was 601.2. Individual corn plants in some fields in this county contained more than 100 corn borer larvae.

Summer Abundance in Sweet Corn

In the summer of 1940, surveys were conducted in several counties of Connecticut, Maine, New Jersey, New York, and Ohio, to determine the relative abundance of the European corn borer in early market sweet corn.^{3/} The fields surveyed represented the most heavily infested ones within a given locality. In each field 100 plants were examined for percentage of plant infestation and 10 infested plants were dissected, whenever possible, to learn the average number of borers per infested plant, the product of the 2 figures giving the average number of borers per 100 plants. The data on sweet corn are presented in table 3.

The corn borer was only half as abundant in early market sweet corn in 1940 as in 1939, according to an average of the data from all 14 counties surveyed. In New Haven County, Conn., the unusually high average of 1,980 borers per 100 plants in 1939 declined to 493 in 1940, and in Lucas County, Ohio, there were 497 borers per 100 plants in 1940, as compared with 817 in 1939. A trend toward increase appeared in Burlington County, N. J., where the average number of borers per 100 plants changed from 417 in 1939 to 510 in 1940. In most of the counties surveyed in eastern New York, including Nassau and Suffolk on Long Island, populations of the borer in sweet corn were lower in 1940 than in 1939, with maximums of 509 and 425 larvae per 100 plants occurring in Albany and Columbia Counties, respectively. Fewer borers were also found in this crop in 1940 than in 1939 in comparable counties surveyed in Maine.

^{3/} The survey of sweet corn in New York was made in cooperation with the Agricultural Experiment Station, Geneva, N. Y., and the data on infestation in this crop in Maine were kindly furnished by the State department of agriculture.

Table 1.--Data on European corn borer abundance in corn, fall of 1940, and comparisons with data for 1939, summary by States

		1940				Average borers: Comparable:		Average borers per 100 plants	
State	Counties	per 100 plants	counties			1939		1940	
	Number	Number		Number		Number		Number	
Connecticut----	8	348.4		8		471.0		348.4	
Delaware-----	3	53.2		3		8.9		53.2	
Illinois-----	5	0		0		--		--	
Indiana-----	35	77.4		35		34.1		77.4	
Kentucky-----	4	0.3		0		--		--	
Maine-----	14	2.2		13		10.2		2.2	
Maryland-----	3	235.3		3		5.8		235.3	
Massachusetts--	10	159.1		10		496.2		159.1	
Michigan-----	20	244.1		20		210.5		244.1	
New Hampshire--	9	34.0		9		51.4		34.0	
New Jersey----	19	109.0		19		70.1		109.0	
New York-----	16	253.8		15		131.3		263.0	
Ohio-----	43	165.2		31		103.5		227.0	
Pennsylvania--	32	9.1		1		142.0		117.0	
Rhode Island--	4	264.6		4		684.1		264.6	
Vermont-----	12	39.6		12		66.2		39.6	
Virginia-----	5	329.5		2		41.4		512.9	
West Virginia--	10	0		0		--		--	
Wisconsin-----	6	5.3		6		3.3		5.3	
Total	258	--		191		--		--	
Areal average	--	115.9		--		130.8		151.5	

Table 2.--Data on European corn borer abundance in corn, fall of 1940, and comparisons with data for 1939

State and county	Average borers: per 100 plants:		State and county	Average borers: per 100 plants:	
	1939	1940		1939	1940
	Number	Number		Number	Number
<u>Connecticut:</u>			<u>Indiana (Cont'd.):</u>		
Fairfield-----	321.4	539.6	Fayette-----	3.2	16.5
Hartford-----	520.4	448.4	Fulton-----	1.5	17.3
Litchfield-----	300.2	213.8	Grant-----	25.4	75.5
Middlesex-----	425.4	472.2	Hamilton-----	4.9	10.6
New Haven-----	503.2	393.4	Hancock-----	3.5	10.5
New London-----	807.2	256.8	Henry-----	7.5	20.6
Tolland-----	366.8	277.6	Howard-----	15.4	35.3
Windham-----	523.0	185.6	Huntington-----	51.0	173.1
Average, 8 counties-----	471.0	348.4	Jay-----	127.7	252.6
			Kosciusko-----	5.3	44.4
			Lagrange-----	6.8	28.5
			La Porte-----	0.8	1.4
<u>Delaware:</u>			Madison-----	11.4	38.7
Kent-----	11.2	29.8	Marshall-----	1.1	17.5
New Castle-----	4.0	25.2	Miami-----	14.3	21.2
Sussex-----	11.4	104.7	Noble-----	38.5	82.9
Average, 3 counties-----	8.9	53.2	Porter-----	0.04	0.4
			Randolph-----	38.0	30.9
			Rush-----	7.1	21.0
			St. Joseph-----	1.3	3.8
<u>Illinois:</u>			Shelby-----	2.2	11.1
Cook-----	--	0	Starke-----	0.3	0.6
Du Page-----	--	0	Steuben-----	44.4	155.8
Kankakee-----	--	0	Tipton-----	9.3	57.9
LaSalle-----	--	0	Union-----	5.0	9.2
Will-----	--	0	Wabash-----	32.4	53.8
Average, 5 counties-----	--	0	Wayne-----	3.1	101.1
			Wells-----	151.2	343.6
			Whitley-----	41.5	89.0
<u>Indiana:</u>			Average,		
Adams-----	177.0	246.4	35 counties	34.1	77.1
Allen-----	147.9	234.5			
Blackford-----	106.4	263.8	<u>Kentucky:</u>		
De Kalb-----	90.3	187.0	Bracken-----	--	0.8
Delaware-----	16.2	43.6	Campbell-----	--	0
Elkhart-----	1.4	8.2	Kenton-----	--	0
			Lewis-----	--	0.1
			Average,		
			4 counties--	--	0.1

Table 2.--Data on European corn borer abundance in corn, fall of 1940, and comparisons with data for 1939--Continued

State and county		Average borers: per 100 plants		State and county		Average borers per 100 plants	
		1939	1940			1939	1940
		Number	Number			Number	Number
Maine:				Michigan:			
Androscoggin-----		0	0.5	Clinton-----		118.2	155.2
Cumberland-----		4.6	2.9	Genesee-----		447.0	399.6
Franklin-----		.9	1.6	Gratiot-----		207.8	516.2
Hancock-----		.2	0	Hillsdale-----		35.6	60.8
Kennebec-----		0	0.1	Huron-----		595.0	352.6
Knox-----		.4	.9	Ingham-----		347.0	60.2
Lincoln-----		50.6	.7	Jackson-----		29.6	33.6
Oxford-----		1.5	.1	Lapeer-----		376.2	288.2
Penobscot-----		.1	.5	Lenawee-----		118.8	130.0
Piscataquis-----		--	1.3	Livingston-----		7.8	68.6
Sagadahoc-----		.2	1.5	Macomb-----		132.8	473.4
Somerset-----		1.1	2.8	Monroe-----		240.0	166.4
Waldo-----		0	.5	Oakland-----		73.4	171.8
York-----		72.9	17.1	Saginaw-----		173.8	369.4
Average:				St. Clair-----		197.0	283.2
13 counties-----		10.2	2.2	Sanilac-----		168.0	512.0
14 counties-----		--	2.2	Shiawassee-----		242.2	230.6
				Tuscola-----		416.4	404.2
				Washtenaw-----		167.6	72.6
				Wayne-----		116.0	132.6
Maryland:				Average:			
Somerset-----		1.2	401.5	20 counties-----		210.5	244.1
Wicomico-----		4.8	45.4				
Worcester-----		11.4	259.1				
Average:							
3 counties-----		5.8	235.3				
				New Hampshire:			
Massachusetts:				Bellmap-----		38.6	3.4
Barnstable-----		774.8	334.0	Carroll-----		21.6	13.6
Bristol-----		573.6	288.6	Cheshire-----		43.4	56.6
Essex-----		770.4	137.8	Grafton-----		4.2	13.2
Franklin-----		104.2	89.0	Hillsboro-----		103.4	24.4
Hampden-----		387.0	130.6	Merrimack-----		36.2	9.0
Hampshire-----		251.6	65.2	Rockingham-----		148.8	54.0
Middlesex-----		860.8	220.2	Strafford-----		33.8	10.0
Norfolk-----		585.0	106.2	Sullivan-----		33.0	122.2
Plymouth-----		391.0	132.2	Average:			
Worcester-----		263.4	86.8	9 counties-----		51.4	34.0
Average:							
10 counties-----		426.2	159.1				

Table 2.--Data on European corn borer abundance in corn, fall of 1940, and comparisons with data for 1939--Continued

State and county	Average borers:		State and county	Average borers	
	per 100 plants:			per 100 plants	
	1939	1940		1939	1940
	Number	Number		Number	Number
New Jersey:			Ohio:		
Atlantic-----	22.6	9.6	Allen-----	154.8	273.4
Bergen-----	292.8	234.0	Auglaize-----	201.4	367.6
Burlington-----	220.8	505.4	Butler-----	--	5.6
Camden-----	61.6	98.8	Champaign-----	23.6	97.8
Cape May-----	1.2	36.2	Clark-----	5.8	23.2
Cumberland-----	14.2	58.6	Clermont-----	--	.4
Essex-Union-----	147.2	106.2	Clinton-----	--	0
Gloucester-----	53.0	101.4	Crawford-----	12.6	256.8
Hunterdon-----	8.0	8.0	Darke-----	23.2	58.0
Mercer-----	22.6	187.2	Defiance-----	35.0	96.6
Middlesex-----	211.0	105.0	Delaware-----	29.6	105.4
Monmouth-----	98.6	387.4	Franklin-----	3.0	86.0
Morris-----	57.6	53.6	Fulton-----	91.8	350.4
Ocean-----	23.2	34.8	Greene-----	--	6.2
Passaic-----	32.9	46.6	Hamilton-----	--	8.4
Salem-----	10.8	58.0	Hancock-----	182.6	427.6
Somerset-----	40.6	4.0	Hardin-----	131.6	379.0
Sussex-----	6.8	4.6	Henry-----	120.0	248.0
Warren-----	6.0	31.8	Logan-----	177.8	276.0
			Lucas-----	191.0	253.4
Average:			Madison-----	23.0	76.4
19 counties-----	70.1	109.0	Marion-----	278.6	247.8
			Mercer-----	77.8	201.6
New York:			Miami-----	0.8	22.4
Albany-----	419.4	14.8	Monroe-----	--	4.0
Columbia-----	139.8	521.8	Montgomery-----	--	15.0
Dutchess-----	87.8	82.2	Morgan-----	--	.4
Greene-----	35.8	83.4	Morrow-----	66.0	293.6
Monroe-----	15.2	297.8	Noble-----	--	1.2
Nassau-----	251.8	742.2	Ottawa-----	65.4	184.0
Niagara-----	227.0	709.6	Paulding-----	105.4	393.6
Orange-----	79.8	20.2	Preble-----	--	20.0
Orleans-----	67.8	577.2	Putnam-----	211.6	391.2
Putnam-Westchester-----	--	116.0	Sandusky-----	80.0	131.2
Rensselaer-----	160.4	54.4	Seneca-----	35.0	238.0
Saratoga-----	65.4	11.8	Shelby-----	56.0	146.6
Schenectady-----	50.6	8.2	Union-----	102.6	165.6
Suffolk-----	191.2	243.8	Van Wert-----	374.8	453.0
Ulster-----	83.6	121.2	Warren-----	--	2.0
Wayne-----	94.0	456.0	Washington-----	--	2.4
			Williams-----	35.6	293.0
Average:			Wood-----	151.2	189.6
15 counties-----	131.3	263.0	Wyandot-----	160.2	309.6
16 counties-----	--	253.8			
			Average:		
			31 counties-----	103.5	227.0
			43 counties-----	--	165.2

Table 2.--Data on European corn borer abundance in corn, fall of 1940, and comparisons with data for 1939--Continued

State and county	:Average borers:		State and county	:Average borers	
	:per 100 plants:			:per 100 plants	
	:1939	: 1940 :		:1939	: 1940
	:Number	:Number:		:Number	:Number
Pennsylvania:			Rhode Island:		
Allegheny-----	---	: 0 :	Bristol-Newport----	859.6	: 287.4
Armstrong-----	---	: 4.2 :	Kent-----	572.8	: 237.0
Beaver-----	---	: 0 :	Providence-----	719.4	: 255.8
Bedford-----	---	: 0 :	Washington-----	504.4	: 278.2
Blair-----	---	: 6.6 :			
Bucks-----	142.0	:117.0 :	Average:		
Butler-----	---	: .4 :	4 counties-----	664.1	: 264.6
Cambria-----	---	: 7.4 :			
Cameron-----	---	: .4 :	Vermont:		
Centre-----	---	:112.8 :	Addison-----	22.2	: 17.0
Clarion-----	---	: 2.4 :	Bennington-----	71.4	: 178.4
Clearfield-----	---	: 1.2 :	Caledonia-----	6.8	: 2.8
Clinton-----	---	: 9.4 :	Chittenden-----	117.6	: 52.0
Columbia-----	---	: 3.2 :	Franklin-----	47.6	: 7.6
Elk-----	---	: 0 :	Grand Isle-----	106.0	: 20.4
Fayette-----	---	: 0 :	Lamoille-----	40.8	: 9.6
Forest-----	---	: 0 :	Orange-----	51.6	: 6.6
Greene-----	---	: 0 :	Rutland-----	61.0	: 48.6
Huntingdon-----	---	: 16.6 :	Washington-----	32.4	: 8.2
Indiana-----	---	: 0 :	Windham-----	142.8	: 110.2
Jefferson-----	---	: 4.4 :	Windsor-----	93.6	: 13.4
Juniata-----	---	: 0 :			
McKean-----	---	: 2.4 :	Average:		
Mifflin-----	---	: 0 :	12 counties-----	66.2	: 39.6
Montour-Northumberland:	---	: 0 :			
Potter-----	---	: 0 :	Virginia:		
Snyder-----	---	: 0 :	Accomac-----	28.0	: 633.3
Somerset-----	---	: 1.6 :	Elizabeth City-		
Union-----	---	: .4 :	York-----	---	: 13.5
Warren-----	---	: 2.0 :	Norfolk-----	---	: 7.2
Washington-----	---	: 0 :	Northampton-----	54.8	: 392.5
Westmoreland-----	---	: 0 :	Princess Anne-----	---	: 601.2
Average:			Average:		
1 county-----	142.0	:117.0 :	2 counties-----	41.4	: 512.9
32 counties-----	---	: 9.1 :	5 counties-----	---	: 329.5

Table 2.--Data on European corn borer abundance in corn, fall of 1940, and comparisons with data for 1939--Continued

State and county		:Average borers: :per 100 plants::		State and county		:Average borers :per 100 plants	
		:1939 : 1940::				:1939 : 1940	
		:Number: Number::				:Number: Number	
<u>West Virginia:</u>		:	:	:	<u>Wisconsin:</u>	:	:
Brooke-Hancock-Ohio----	:	-- :	0 ::	:	Kenosha-----	:	0.4 : 1.2
Marion-----	:	-- :	0 ::	:	Milwaukee-----	:	0 : 3.2
Marshall-----	:	-- :	0 ::	:	Ozaukee-----	:	16.2 : 14.8
Mason-----	:	-- :	0 ::	:	Racine-----	:	0 : 0
Monongalia-----	:	-- :	0 ::	:	Washington-----	:	3.0 : 11.8
Pleasants-----	:	-- :	0 ::	:	Waukesha-----	:	0 : 0.8
Ritchie-----	:	-- :	0 ::	:		:	:
Tyler-----	:	-- :	0 ::	:	Average:	:	:
Wetzel-----	:	-- :	0 ::	:	6 counties----	:	3.3 : 5.3
Wood-----	:	-- :	0 ::	:		:	:
	:	:	:	:		:	:
Average:	:	:	:	:		:	:
10 counties-----	:	-- :	0 ::	:		:	:

Table 3.--Data on European corn borer abundance in early market sweet corn, summers of 1939 and 1940

State and county	1939		1940	
	:Fields	:Average borers	:Fields	:Average borers
	:Number	:per 100 plants	:Number	:per 100 plants
	:Number	Number	:Number	Number
<u>Connecticut:</u>	:	:	:	:
New Haven-----	25 :	1,980	25 :	493
<u>Maine:</u>	:	:	:	:
Androscoggin-----	19 :	10	25 :	16
Cumberland-----	25 :	63	20 :	36
York-----	25 :	125	25 :	33
Average+-----	69 :	71	70 :	28
<u>New Jersey:</u>	:	:	:	:
Burlington-----	29 :	417	29 :	510
<u>New York:</u>	:	:	:	:
Albany-----	17 :	753	7 :	509
Columbia-----	17 :	537	11 :	425
Nassau-----	14 :	295	18 :	22
Rensselaer-----	5 :	990	2 :	392
Saratoga-----	7 :	242	7 :	394
Schenectady-----	5 :	379	4 :	339
Suffolk-----	11 :	97	7 :	14
Ulster-----	14 :	1,264	10 :	279
Average-----	90 :	593	66 :	249
<u>Ohio:</u>	:	:	:	:
Lucas-----	25 :	817	25 :	497





ESTIMATES OF DAMAGE BY THE EUROPEAN CORN BORER IN 1940

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Bureau of Entomology and Plant Quarantine,
United States Department of Agriculture.

The European corn borer (Pyrausta nubilalis Hbn.) in 1940 caused an estimated loss of slightly more than \$6,500,000 to the corn crop produced in 258 counties of the Northeastern States and valued at approximately \$126,000,000. In 1939^{1/} damage by the insect to corn valued at approximately \$106,000,000 and grown over a slightly larger and not entirely comparable area in the same part of the country was estimated at almost \$4,000,000. It is believed that these estimates provide a fairly reliable and conservative picture of the current economic importance of the pest.

The damage estimates in 1940 were calculated in the same way as in previous years. The percentage of loss of yield was determined by applying the established damage indices of 3 percent and 8 percent loss per borer per plant for field and sweet corn, respectively, to the data on county abundance of the corn borer obtained in the fall of 1940.^{2/} Data on corn production were taken from the 1935 Agricultural Census and seasonal market quotations on corn were contributed by the Agricultural Marketing Service of the United States Department of Agriculture in Washington and in the field, and by several State and city marketing agencies. In the calculations the 1940 quotations for corn harvested for grain are preliminary and the prices of sweet corn are averages of daily quotations for the crop-marketing season. The following prices for 1940 were used:

Corn harvested for grain, cents per bushel: West Virginia, 80; New Jersey and Pennsylvania, 78; Connecticut, Rhode Island, and Virginia, 77; New York, 7; Massachusetts and Vermont, 73; Kentucky, Maine, and New Hampshire, 72; Maryland, 70; Delaware, 68; Ohio, 66; Michigan, 65; Illinois and Indiana, 62; and Wisconsin, 60.

Sweet corn, cents per dozen ears: Connecticut, 21; New Jersey, 18; western New York, 17; Maine, Massachusetts, New Hampshire, eastern New York, Ohio, Pennsylvania, Rhode Island, Vermont, and West Virginia, 15; Delaware, Maryland and Virginia, 14; Michigan, 13; Illinois, Indiana, Kentucky, and Wisconsin, 12

^{1/} See Insect Pest Survey Bul. v. 19, sup. to No. 1, March 15, 1940.

^{2/} See Insect Pest Survey Bul. v. 20, sup. to No. 9, December 20, 1940.

Table 1 presents the data on the value of the corn crop and the losses caused by the European corn borer in 1940 within the counties surveyed in each of 19 infested States.

The infested area surveyed in 1940, for which damage estimates have been prepared, comprised 5,369,528 acres of corn harvested for grain, with an estimated crop value of \$105,171,673, and 171,154 acres of sweet corn, with an estimated crop value of \$20,700,830. The combined acreage of grain and sweet corn was 5,540,682 and the estimated crop value of both totaled \$125,872,503.

The estimated total loss by the European corn borer to the crop in the area surveyed in 1940 was \$6,679,827. This estimated loss was divided as follows: Corn harvested for grain, \$4,140,479 (62 percent of the entire loss); sweet corn \$2,539,348 (38 percent of the entire loss). In 1939, 46.4 percent of the total loss was in corn harvested for grain and 53.6 percent in sweet corn.

In the surveyed areas in the Lake States (Ohio, Michigan, Indiana, Illinois, Wisconsin, western Pennsylvania, and western New York) and in Kentucky the loss caused by the corn borer in 1940 to corn harvested for grain was estimated at \$3,495,810 (86.3 percent of the entire loss in that area) and to sweet corn at \$552,614 (13.7 percent of the entire loss), or a total of \$4,048,424.

In the surveyed areas in the Eastern States (New England, New Jersey, Delaware, Maryland, Virginia, eastern New York, and eastern Pennsylvania) the loss caused by the corn borer in 1940 to corn harvested for grain was estimated at \$644,669 (24.5 percent of the entire loss in that area) and to sweet corn at \$1,986,734 (75.5 percent of the entire loss), or a total of \$2,631,403.

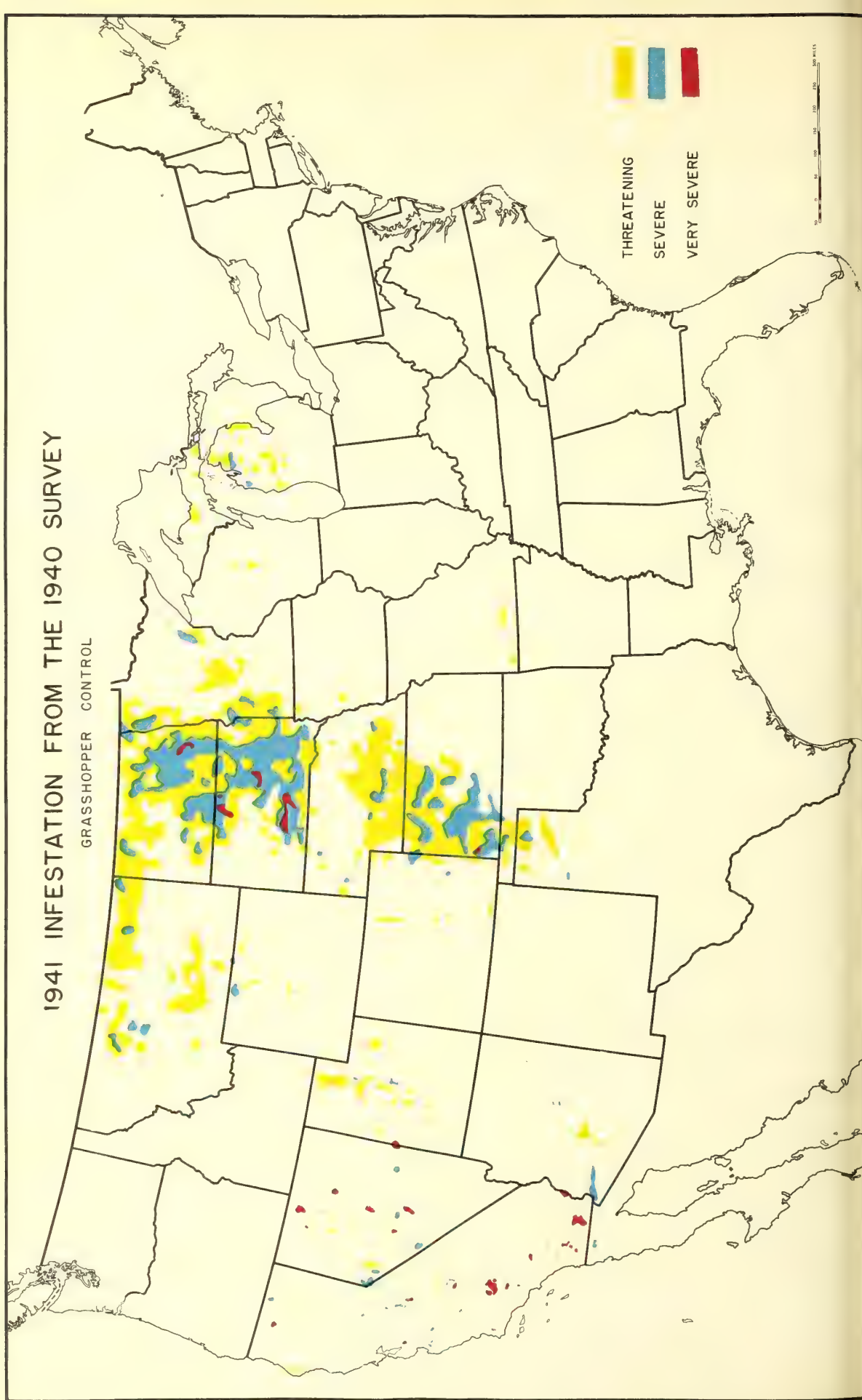
The greatest damage by the corn borer to corn harvested for grain in areas surveyed in 1940, as in 1939, occurred in Ohio, Michigan, and Indiana, where the estimated losses were \$2,144,591, \$656,040, and \$558,198, respectively. The estimated losses caused by the pest to sweet corn in 1940 were highest in the States of New Jersey, New York, and Connecticut, where they were \$871,149, \$572,860, and \$413,324, respectively.

Table 1.--Estimates of damage by the European corn borer to corn harvested for grain, and to sweet corn, in areas surveyed in 1940

State	Number	Corn harvested for grain				Sweet corn				Total	
		Counties:	area surveyed:	value of crop	Estimated : loss of : crop value:	Extent of : area surveyed:	Estimated : value of crop :	Estimated : loss of : crop value:	Estimated : loss of : crop value:	Estimated : loss of : crop value:	Estimated : loss of : crop value:
			Dollars	Dollars	Dollars	Acres	Dollars	Dollars	Dollars	Dollars	Dollars
Connecticut.....	8		417,086:	45,823:	7,373:1,237,614:	413,324:	459,147				
Delaware.....	3		136,052:	2,676,521:	53,391:	2,955:	330,960:	7,515:	60,906		
Illinois.....	5		256,835:	1,731,612:	0	7,623:	731,808:	0	0		
Indiana.....	35		1,532,393:	26,424,703:	558,198:	18,802:	1,804,992:	54,365:	612,563		
Kentucky.....	4		43,863:	628,121:	64:	261:	25,056:	2:	66		
Maine.....	14		3,431:	87,524:	71:	11,194:	1,343,280:	2,253:	2,324		
Maryland.....	3		71,010:	1,084,643:	70,716:	169:	18,928:	2,251:	72,967		
Massachusetts.....	10		7,622:	233,510:	6,878:	11,168:	1,340,160:	192,126:	199,004		
Michigan.....	20		475,625:	8,945,676:	656,040:	12,542:	1,304,368:	225,901:	881,941		
New Hampshire.....	9		4,072:	122,869:	1,539:	2,365:	283,800:	6,107:	7,646		
New Jersey.....	19		152,117:	4,312,499:	182,627:	28,447:	4,096,368:	871,149:	1,053,776		
New York.....	16		71,311:	1,828,778:	153,159:	20,118:	2,476,256:	572,860:	726,019		
Ohio.....	43		1,953,314:	40,227,497:	2,144,591:	24,195:	2,903,400:	78,740:	2,223,331		
Pennsylvania.....	32		423,858:	12,023,277:	62,463:	16,398:	1,967,760:	56,470:	118,933		
Rhode Island.....	4		2,287:	56,086:	4,632:	1,675:	201,000:	43,459:	48,091		
Vermont.....	12		13,013:	361,043:	5,355:	1,484:	173,080:	5,879:	11,234		
Virginia.....	5		86,311:	1,496,189:	193,941:	328:	36,736:	6,637:	200,578		
West Virginia.....	10		91,404:	1,946,266:	0	1,283:	153,960:	0	0		
Wisconsin.....	6		31,004:	567,773:	991:	2,774:	266,304:	310:	1,301		
Total.....	258		5,369,528:	105,171,673:	4,140,479:	171,154:	2,970,830:	2,539,348:	6,679,827		

1941 INFESTATION FROM THE 1940 SURVEY

GRASSHOPPER CONTROL



INSECT PEST SURVEY BULLETIN

Vol. 20

Summary for 1940

No. 10

INTRODUCTION

The winter of 1939-40 averaged below normal in nearly all sections east of the Great Plains, except for a considerable area from the central lake region westward, with the greatest minus departures over a large southeastern area. From the Rocky Mountains westward, the winter was decidedly warmer than usual.

Precipitation was above normal over most of the western part of the country and very scanty over the eastern part, in some places amounting to less than half the normal rainfall.

The area of severe cold weather, except in the Gulf and South Atlantic States, had sufficient snow cover to protect hibernating insects; therefore survival was about the same as usual, but in the Southeastern States the cold affected insect populations adversely. Scale insects and aphids were reduced when citrus trees were defoliated by freezing temperatures; however, the aphids rapidly increased when the new tender growth started. The San Jose scale suffered high mortality in the Fort Valley district of Georgia, where more than usual infestation had built up. On account of the scarcity of blooms, flower thrips were reported in very small numbers, in the Southeast, northward to North Carolina. The survival of the boll weevil was the lowest recorded for many years and the lowest on record at Tallulah, La. The banded cucumber beetle, usually active all winter, was killed extensively and cutworms were rendered less active. Pea aphid was killed in the Gulf States. On the other hand, several species of aphids on truck crops around Norfolk, Va., were able to withstand the cold and continued to reproduce all winter.

April and May were characterized by abnormally cool and wet weather in the eastern part of the country and continued warmth in the West. This was most unfavorable to the chinch bug; and in spite of the fact that the great populations that went into hibernation in the fall of 1939 survived the winter, migrations by the adults from winter quarters to cultivated fields was slow and development of the first brood was delayed and prolonged. The weather likewise interfered with hatching of grasshopper eggs and the development of the young hoppers over much of the infested area. The cool, rainy weather was favorable to activity by cutworms and root and seed maggots.

The summer was cooler than normal over the eastern part of the country, but warmer west of the Rocky Mountains.

Precipitation was deficient in the Northeast, the central and western parts of the Ohio Valley, in Missouri, and in the central Plains States, but was generally above normal throughout the central and eastern parts of the country. Deficiencies occurred from the Rocky Mountains westward.

The fall was abnormally warm except in the Northeast and along the Atlantic and Gulf coasts. It was very warm in the upper Mississippi and Missouri Valleys and in the Great Plains.

The fall weather was favorable to insect development and many species continued activity later than usual and built up heavy populations to go into hibernation. Of these the chinch bug, the boll weevil, and the codling moth were outstanding examples.

GRASSHOPPERS

The remaining infestations of the range grasshopper (Dissosteira longipennis Thos.) in Colorado and New Mexico were reduced to a status of noneconomic importance. This was due to cool, wet weather at hatching time in certain areas, to the work of predators and parasites, and to intensive control practices.

North-central Montana was heavily infested with eggs of Melanoplus mexicanus Sauss. by adults that flew into that area in 1939. Large-scale flights failed to develop from the above area, owing to control work. Only minor crop losses were sustained in the area as a whole, whereas just across the adjacent Canadian border, where grasshopper populations were similar but where little bait was spread, crop destruction was complete.

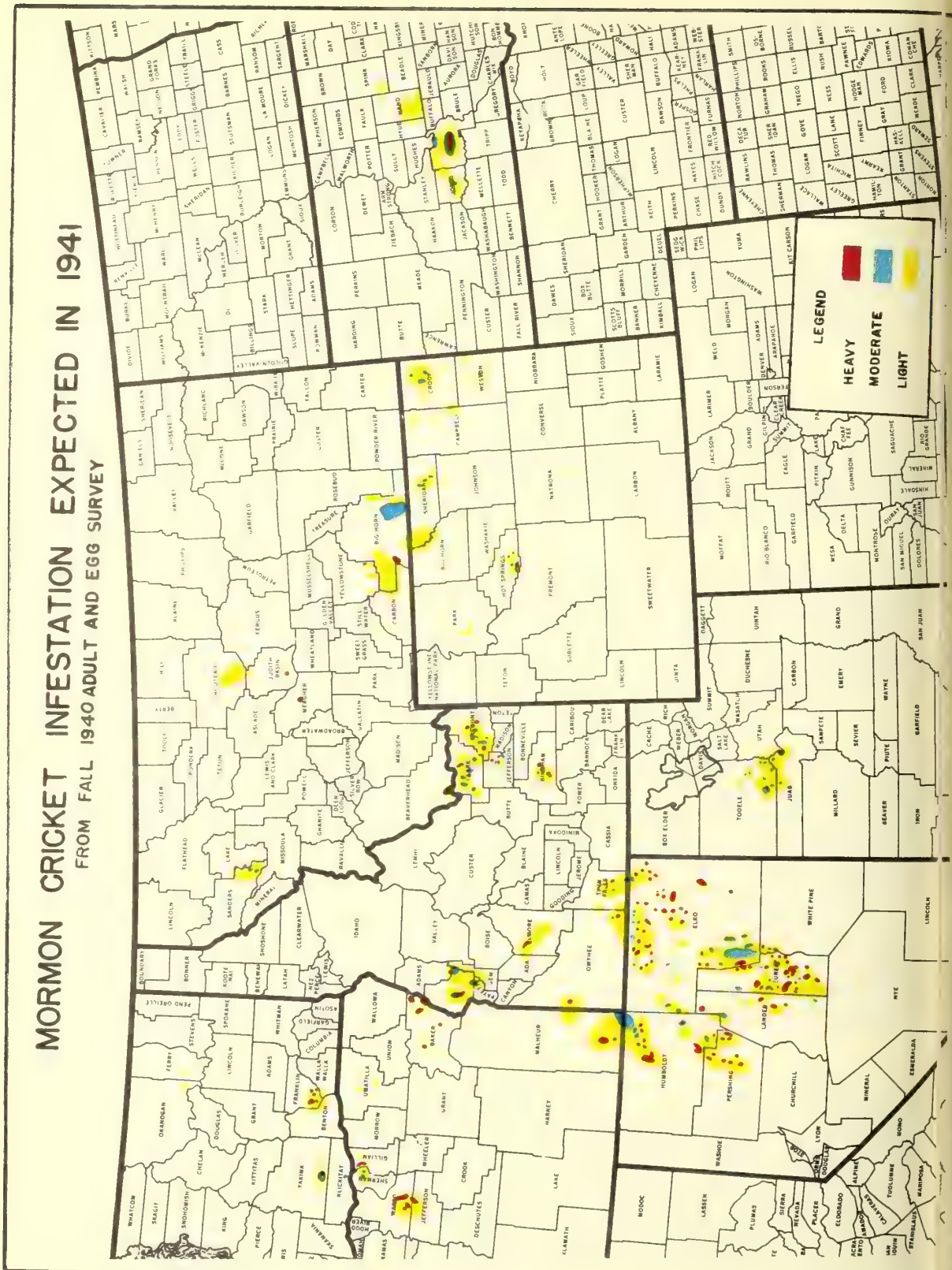
Second-generation adults of M. mexicanus deposited eggs in 1939 over extensive areas of idle and waste lands in southeastern Colorado, the Panhandle of Oklahoma, and in northern Texas. General but not heavy flights of first-generation adults spread the species over most of the counties of western Kansas. Late in September 1940 second-generation adults of M. mexicanus began migrating in western Kansas and southern Nebraska. By mid-October flights extended the infestation 100 miles into Texas. Field margins of wheat were completely destroyed in considerable areas in the southern part of the infestation. Control activities by farmers increased materially and were continued into the early part of November. Subsequent low temperatures, together with parasitization and other natural causes, resulted in almost complete destruction of live grasshoppers in the second-generation area.

Little has been known of Aeoloplus turnbullii Thos. as an economic species. It caused severe marginal and considerable field damage in Kansas in 1939, was predominant there in adult and egg surveys, and it seemed probable that this species might cause heavy crop damage in 1940. In 1939 marginal growths of weeds dried up, forcing the species to migrate into fields. Weather conditions in 1940 favored the harboring of the species in marginal vegetation, therefore little migration to fields took place and little crop damage resulted.



MORMON CRICKET INFESTATION EXPECTED IN 1941

FROM FALL 1940 ADULT AND EGG SURVEY



The species M. occidentalis Thos. occurs in several of the Western States. It has been considered as restricted to range land areas and to have little bearing on crop protection. In 1938 the species was known to be present in only a small area in the northwestern part of Nye County, Nev., but has spread materially, covering some 86,500 acres, as estimated by the 1940 fall adult survey. Crop damage by M. occidentalis has remained insignificant and range destruction has not been great, except in localized areas. Populations of M. mexicanus expected in eastern Wyoming and northern and northeastern Colorado did not develop. The hatch was light during the protracted rainy, cool weather late in the spring, with an apparent further reduction of early instar nymphs.

Data obtained from egg surveys in the fall of 1940 indicate a general downward trend of infestation for 1941, with larger populations in South Dakota, North Dakota, Minnesota, Kansas, Nebraska, and Montana. (See map.) (B. M. Gaddis, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

MORMON CRICKET

According to the adult and egg surveys conducted in the fall of 1940, more than 8,000,000 acres of land were infested in the nine States included in the surveys, about 5,000,000 acres less than in 1939. The widespread infestation formerly present in Montana has been reduced by approximately 3,000,000 acres. Severe infestations in Wyoming have also been greatly reduced in size. Increases in the size of severe infestations have occurred in parts of Oregon, Nevada, and Idaho. A marked decrease in the number of heavily infested acres has been noted in 1940, as compared with 1939. The number of moderately infested acres has increased by approximately 50,000, and the total number of heavily and moderately infested acres within 5 miles of agricultural lands has decreased by about 300,000. The number of lightly infested acres has decreased by about 4,000,000. Results of the egg survey conducted in the autumn of 1940 indicate that the Mormon cricket outbreak in 1941 may be most evident in northern Nevada, southeastern Oregon, and southern Idaho, with less aggravated conditions in the neighboring Rocky Mountain States. Mormon cricket eggs deposited in the Big Horn Mountains of Big Horn and Sheridan Counties, Wyoming, in 1939, did not hatch in 1940, but many of these eggs were showing considerable embryonic development in the fall of 1940. The accompanying map shows the infestation expected in 1941. (B. M. Gaddis, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

EUROPEAN CORN BORER

Following a winter during which European corn borer mortality over the infested area as a whole was about average, borer development during the 1940 season was characterized by late oviposition, associated with delayed pupation and emergence or with prevailing low temperatures subsequent to emergence being reflected in retarded oviposition. In the Lake States area an increased trend toward a second generation was observed, particularly in the southern part of the infested part of Indiana and in southwestern Ohio. Distribution records of the occurrence of the corn borer in 1940, principally by State personnel, have established the presence of the borer in the following counties not previously reported as infested: Champaign, De Kalb, Ford, Grundy, Iroquois, Kane, Kendall, Livingston, McHenry, McLean, Vermilion, and Winnebago in

Illinois; Harford in Maryland; Brown in Ohio; Essex, Isle of Wight, James City and New Kent in Virginia; and Columbia, Portage, Walworth, and Waushara in Wisconsin.

The Bureau of Entomology and Plant Quarantine and the interested States cooperated again in the fall of 1940 in a survey to determine the relative abundance of the borer over a considerable portion of the infested territory. Significant increases in abundance in 1940 from 1939 occurred in comparable surveyed sections of Indiana, Ohio, western New York, Long Island, N. Y., New Jersey, Delaware, Maryland, and Virginia; significant decreases in Vermont, Massachusetts, Connecticut, and Rhode Island; and no significant changes in the levels of population in Wisconsin, Michigan, Bucks County in Pennsylvania, eastern New York proper, New Hampshire, and Maine. Infestation in the few counties surveyed in southeastern Wisconsin in 1940 was light, as in 1939, whereas in southeastern Michigan larval populations continued at high levels. Population levels in Illinois were very low. The increases in abundance of the insect from 1939 to 1940 in the surveyed portions of Indiana and Ohio brought the populations in these States to the highest levels on record, and in the 4 counties surveyed along the southern edge of Lake Ontario in western New York, the borer reached its maximum abundance for that section of the country. Although less abundant throughout New England and in eastern New York proper in 1940 than in 1939, the corn borer was much more numerous southward along the Atlantic coast from Long Island through New Jersey, Delaware, Maryland, and Virginia. The highest infestations per county in 1940 occurred in Nassau County, Long Island, N. Y., and Niagara County, N. Y., which averaged 742.2 and 709.6 borers per 100 plants, respectively. Other relatively high populations--501 to 700 borers per 100 plants--were found in the counties of Gratiot and Sanilac, Mich.; Columbia and Orleans, N. Y.; Fairfield, Conn.; Burlington, N. J.; and Accomac and Princess Anne, Va. Some of the highest populations of the European corn borer known in the United States were observed in Princess Anne County on the mainland of Virginia where the average number of borers per 100 plants determined by the survey was 601.2. Individual corn plants in some fields in this county contained more than 100 corn borer larvae.

In general, infestations in early market sweet corn were much lower in 1940 than in 1939, averaging about 5 borers per plant in the most heavily infested fields in truck-crop sections in New Haven County, Conn.; Burlington County, N. J.; Albany and Columbia Counties, in the Hudson River Valley, N. Y. and Lucas County, Ohio. The 3 fields observed in Burlington County, N. J., with the highest infestations averaged 16, 14, and 13 borers per plant, respectively. The average of 28 borers per 100 plants observed in early market sweet corn in Maine was lower in 1940 than in comparable counties surveyed in 1939. A detailed account of the corn borer, together with a map, was published as Supplement to No. 9 of the Insect Pest Survey Bulletin, December 20, 1940. (C. M. Packard, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

CHINCH BUG

The seasonal development of the chinch bug during 1940 roughly paralleled that of the two previous years, in most of the infested area. Hibernation surveys made late in the fall of 1939 and early in the spring of 1940 showed

the bugs present in threatening numbers from central Ohio across Indiana, Illinois, southern Iowa, and Missouri to eastern Kansas, eastern Nebraska, and northeastern Oklahoma. Although considerable winter mortality was reported from many sections of the area, it was not sufficient to materially reduce the potential threat of infestation. A cold spring delayed emergence of the overwintering adults and heavy rains during the development of the first-brood nymphs reduced the threatening heavy general infestation to moderate spotted outbreaks, especially over the eastern part of the area. Ohio reported practically no crop damage. West of the Mississippi River damage was more general and serious over most of the infested area. Slight local damage by the first brood was also reported from Pennsylvania, Tennessee, and Arkansas. Over most of the infested area drought in the fall favored the development of the nymphs of the later broods and the subsequent migration of adults to winter quarters. (Philip Luginbill and Curtis Benton, Bureau of Entomology and Plant Quarantine U. S. D. A.)

Results of the survey to determine the extent and intensity of chinch bug infestations in the States of Illinois, Indiana, Iowa, Kansas, Missouri, Nebraska, Oklahoma, and South Dakota, conducted during November 1940, indicate that the infestations will, in general, probably be lighter than those of 1939. Centers of infestation have apparently moved to the north and west, where winter mortality will probably be heavy. In Iowa and Missouri, the infestations appear to be lighter and more scattered, while those in Kansas, Oklahoma and Nebraska are expected to be heavier and more widespread. The situation in Indiana and Illinois apparently has not changed appreciably over that of the previous year. The survey this fall was extended to several counties in southeastern South Dakota, where moderate infestations involving all or parts of five counties were found. (B. M. Gaddis, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

HESSIAN FLY

At harvest time the surveys of wheat stubble indicated that hessian fly infestations were low in wheatfields throughout Maryland, Delaware, northeastern and southern Virginia, south-central Pennsylvania, north-central North Carolina, Ohio, Indiana, Michigan, southern Illinois, west-central Tennessee, and northern and southeastern Missouri. Infestations ranged from low to moderate in north-central Pennsylvania, northwestern Virginia, Kentucky, eastern Tennessee, eastern Illinois, and in south-central and eastern Kansas. Infestations were low to heavy in southeastern Nebraska. From moderate to heavy infestations of the hessian fly occurred in eastern and western Pennsylvania and in southwestern Missouri. The infestations of hessian fly were generally low or lacking in fall-sown wheat throughout the Eastern and Central States in 1940. Dry weather existed at the time of the regular emergence of the fly and at the time of wheat seeding and there was low or no larval establishment in volunteer and regularly sown wheat. Hence, the outlook is favorable for a light brood of hessian fly in the spring of 1941 in the States east of the Mississippi River. In the winter-wheat-growing areas from Iowa to Kansas, the populations increased during the fall of 1940. The weather conditions were favorable for an early emergence of the fly and for infestations to volunteer wheat. In Iowa there was considerable rain during the summer and early part

the fall with a probable increase of the fly, although very little, if any, commercial fly losses are anticipated in 1941. In the southeastern counties of Nebraska and the central and eastern counties of Kansas there were heavy local rains late in July and early in August, which favored an early emergence of the fly and promoted an unusual growth of early volunteer wheat. Moderate to heavy infestations exist in this volunteer wheat. In Nebraska the regularly sown wheat is relatively lightly infested; whereas in Kansas, owing to a brood of flies from volunteer wheat, from low to high infestations are general in both regular and late-sown wheat throughout the eastern half of the State. The infestations in Kansas are higher and more universally distributed than in any year since 1927. A menacing brood of hessian fly in both Nebraska and Kansas in the spring of 1941 may be expected, if weather conditions are favorable. (Compiled from information supplied by Federal and State agencies; W. B. Cartwright, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

WHITE-FRINGED BEETLE

Inspection during 1939 was confined principally to delimiting the areas known to be infested in 24 counties or parishes in Alabama, Florida, Louisiana and Mississippi. One new major infestation was found in the vicinity of Hattiesburg, Miss., where both species of the white-fringed beetle were found, with Pantomorus peregrinus Buch. predominating. An isolated infestation of P. leucoloma Boh. was also found at Maxie, Miss., 24 miles south of Hattiesburg. Large acreages were added to the infestations at Monroeville, Ala., New Orleans, La., and Pensacola, Fla. By the end of 1939 the known infested acreage had increased to 74,221 acres. Beetle populations were generally reduced throughout the infested areas to the point where economic damage was very slight in 1940, and in many places it was difficult to find the adults during the season. Inspections conducted during the 1940 season were confined chiefly to work around the periphery of known infestations and to railroad lines and highways leading out of the infested areas. Some additional infested properties were found, most of which were adjoining or near old infestations. Important new infestations included approximately 2,000 acres about 5 miles west of Pensacola, Fla.; approximately 600 acres northwest of the Mobile, Ala., quarantined area; and about 1,000 additional acres in Long Beach, Miss. Large acreages were also added to the known infested areas at Florala and Monroeville, Ala., and New Orleans, La. A total of 13,649 acres was found infested during 1940. On September 30, 1940, the total acreage known to be infested by the white-fringed beetle was 87,898 acres. (B. M. Gaddis, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

VETCH WEEVIL

Comparatively slight spread of the vetch weevil was observed in 1940. In Pennsylvania it was found for the first time in Cumberland County, along the roadside on Route 34, between Carlisle and Arendtsville. It was also discovered in Henry County, Va., in June 1940. The adult was very late this year the first individuals being swept at Arendtsville on June 3. In Oregon the insect was found in 1940 for the first time in Polk and Columbia Counties, in addition to those counties reported in 1939. In Washington State no extension of infestation was observed beyond the counties reported in 1939. (C. M. Packard, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

LEGUME WEEVIL, OR EGYPTIAN ALFALFA WEEVIL

In April 1939, specimens of a weevil not heretofore reported as occurring in this country were collected in the Yuma Valley, near Yuma, Ariz., and later identified as Hypera brunneipennis Boh., which had originally been described from Egypt. In order to determine the extent to which this weevil had spread, and also obtain information as to its potential importance as an economic pest, a survey was begun in January 1940. Inspections were made of alfalfa and sour clover throughout the alfalfa-growing regions of the southern half of California, southern Nevada, Arizona, southern New Mexico, and western Texas. The results of this survey indicated a slight increase in the area previously established as infested in the vicinities of Yuma, Ariz., and Winter Haven, Imperial County, Calif. A small, light infestation was also discovered at Tempe, Ariz. (B. M. Gaddis, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

After aestivating throughout the summer and fall months, adults of the Egyptian alfalfa weevil began migrating to fields in Yuma Valley late in November. Migration was virtually completed by mid-December, but field populations appeared considerably smaller than last year. Consequently, damage during the winter and spring of 1941 now appears unlikely. Earliest emerging adults began ovipositing during the first week of December and virtually all were ovipositing by the latter part of that month. Rainy, cool weather during the latter half of December, however, minimized egg production and retarded hatching to the extent that no larvae had yet appeared in the field on December 27. (C. M. Packard, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

SUGARCANE BORER

The winter of 1939-40 was one of the coldest on record in the area infested by the sugarcane borer and the coldest in Louisiana since that of 1898-99. Borers surviving the winter in sugarcane in Louisiana were only about one-tenth of the number surviving the winter of 1938-39, which was about a normal Louisiana winter. Borer survival in southern Florida was not so much reduced, although the infestation was below normal at the time limited examinations were made in that area in September, in cooperation with J. W. Wilson of the Florida Agricultural Experiment Station. The borer population surviving in rice stubs in Louisiana was found by W. A. Douglas to be less than half of that surviving a normal winter. Borers emerged from hibernation in Louisiana from 2 to 3 weeks later than normal. Infestation by the first-generation borer in sugarcane was about one-twelfth of that for the same generation in 1939, and for the second generation it was about one-tenth of that in 1939. Based on a survey made jointly with A. L. Dugas of the Louisiana Agricultural Experiment Station at harvest time, the percentage of joints bored in Louisiana in 1940 was estimated to be 5.3. Estimated percentages of joints bored in 5 previous years based on similar surveys were: 1939, 19.7; 1938, 15.9; 1937, 16.1; 1936, 8.7; and 1935, 8.1. (C. M. Packard, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

PARLATORIA CHINENSIS MARLATT

In May 1940, infestations of a diaspine scale, Parlatoria chinensis Marlatt, not heretofore reported as occurring in this country, were discovered in St.

Louis, Mo. This scale has been reported from China, Japan, Egypt, and India. In order to determine the extent to which this scale might have spread within the city of St. Louis, and also its potential importance as an economic pest, a survey by the Bureau in cooperation with the Missouri State Department of Agriculture was begun in December 1940. Up to January 15 thorough inspection of parks and other locations within the city of St. Louis has disclosed infestations in only 2 places—1 in the immediate neighborhood of the Missouri Botanical Gardens and another north of Forest Park. It has been found on approximately 48 different genera of plants and no conclusion has as yet been reached as to a favored host. Information is also being obtained as to destinations of plants which have been moved from the infested area during the last several years, and such destinations are being inspected or are reported to State officials. (B. M. Gaddis, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

JAPANESE BEETLE

The 1939-40 brood of the Japanese beetle was generally characterized by retarded development in all its stages. Prehibernation larval development in the fall of 1939 was retarded, and climatological conditions during the spring of 1940 further retarded late larval development. As a result, beetle emergence was consistently from 10 days to 2 weeks later than normal throughout the infested areas. No detailed survey of the regional concentration of the beetle in the area of general distribution, such as has been made annually for the last several years, was carried out in 1940, but observations were made of the situation in connection with other field work. A marked increase in beetle abundance and spread was noted in southwestern Connecticut, while the infestation in Westchester County and the western half of Long Island in New York was fully as heavy as in the preceding year. In New Jersey the northern part of the State below the hilly region had a dense beetle population; in the central portion where the infestation has been rather sparse for several years, beetle abundance has so increased that tree injury and marked feeding on soybeans and corn were common; in the southern portion, particularly in Salem and Cumberland Counties, the infestation was fully as heavy as during the previous year. In Pennsylvania the infestation in the southeastern portion, particularly in Lower Chester and Lancaster Counties, has remained very heavy, but in the Harrisburg area a marked decline in the infestation was noted. In the northeastern part of Maryland, from the latitude of Baltimore northward to the Pennsylvania line the infestation continued extremely heavy. The same condition prevailed in the upper half of Delaware. The secondary centers of localized heavy infestation on the Eastern Shores of Maryland and Virginia have increased markedly in both intensity of infestation and local dispersion, as compared with the situation in 1939. The development of the infestation on the Eastern Shore Peninsula is especially interesting in view of the rather limited pasture lands suitable as breeding areas. The infestation in the District of Columbia and adjacent portions of Maryland and Virginia has increased markedly in both extent and intensity, as compared with the situation in 1939. This heavily infested area now comprises approximately 290 square miles. In New England increase in both beetle abundance and local dispersion was observed in 1940 at a number of the known localized centers of heavy infestation, particularly at South Egremont and Worcester, Mass.; Keene, N. H.; Providence, R. I.; and Hartford and New Haven, Conn. A very heavy localized infestation in White River Junction, Vt.

was reported by State authorities. No evidence of noticeable increase in infestation in 1940 over that found in 1939 was observed at Concord and Dover, N. H., and Springfield, Mass. Throughout the area of general infestation, the late emergence of the adult beetle population in the summer of 1940, together with generally cool late summer and early fall weather, very materially retarded fall larval development. A marked predominance of second-instar larvae far beyond the normal was found late in September. While most of the larvae had developed to the third instar before going into hibernation, the relative size of the overwintering larvae is generally small. (C. H. Hadley, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

An infestation of no great commercial importance but of more than usual interest, was that of Japanese beetles on sun-grown tobacco in Manchester, Conn. While the infestation, like that in shade tents in 1939, was apparently due to force of circumstance, in this case the mowing of an adjoining field containing Polygonum, it may nevertheless presage future infestations of tobacco by this insect. It was found that the beetles, after feeding on tobacco, showed a preference for it over wild grape, smartweed, and other plants. (A. W. Morrill, Jr., Bureau of Entomology and Plant Quarantine, U. S. D. A.)

CODLING MOTH

The codling moth passed the winter successfully over the eastern part of the country, survival being higher than usual everywhere except possibly in Missouri where there was 75-percent mortality above the snow line in the northwestern part of the State. Emergence of spring moths started the first week in May in Maryland, Kentucky, and Missouri, and the last week of May in New York. The first eggs were reported from Kentucky on May 10 and from Indiana on May 13. On account of cool, rainy weather development was delayed and prolonged, making control difficult. First-brood injury seemed to be greater than usual in New York, Ohio, Indiana, and Illinois, although in Delaware, Virginia, Missouri, and Kansas injury was lighter than usual. There was considerably more injury than usual in Maine and Connecticut. Favorable weather late in the season allowed a heavy third-brood population to build up, causing more than usual injury and permitting a high population to go into winter quarters.

PLUM CURCULIO

The plum curculio passed the winter and came out of hibernation in the spring in greater numbers than usual at Fort Valley, Ga. Unfavorable weather retarded development and the infestation there was later and lighter than usual. All varieties escaped an attack by the second brood. The curculio was reported as more abundant and injurious to apples and stone fruits in Delaware, Ohio, Indiana, Missouri, and Texas.

FRUIT APHIDS

Eggs of the fruit aphids were reported as very scarce throughout the northeastern quarter of the country. Early in the spring infestation was very light. During the last of May and early in June, infestations of the rosy apple aphid particularly, and also of the apple aphid built up in considerable numbers all over the country and resulted in considerable injury. The rosy apple aphid also

caused some damage in Washington.

ORIENTAL FRUIT MOTH

The oriental fruit moth caused about the usual amount of damage generally. Quite severe injury to fruit was reported from Connecticut, New York, New Jersey and Missouri. The insect was reported from Texas several times during the season on peach and plum. This is the first time the insect has been reported as injurious in the State. It was reported as having been collected there several years ago.

BEET LEAFHOPPER

The beet leafhopper populations in the fall of 1939 in the breeding areas of southern Idaho, northern Utah, and California were the lowest for several years. Winter survival in these areas was also low; however, in the spring ideal weather conditions in southern Idaho was responsible for a heavy reproduction of the insect and luxuriant growth of its food plants. Surveys of commercial beanfields in July showed that curly-top injury to garden varieties grown for seed ranged from 1.75 to 44.0 percent and to the Great Northerns from 0.25 to 8.5 percent. A survey of the curly-top infection in beetfields of Idaho and eastern Oregon was made in July and August 1940. The data showed that 99.2, 84.4, and 26.2 percent of the beets in the western Idaho-eastern Oregon south-central Idaho, and eastern Idaho areas, respectively, were infected with curly top. There was also a reduction in the average grade of curly-top severity from 2.5 for the western Idaho-eastern Oregon to 1.6 for the south-central Idaho and 1.3 for eastern Idaho areas. A comparison of the average curly-top infection in all districts shows that 68.3, 37.7, and 75.7 percent of the plants were infected during the seasons of 1938, 1939, and 1940, respectively. In northern Utah, sugar beets and tomatoes were subjected to a great influx of long-distance migrant leafhoppers in April from southern Idaho, southern Nevada, and northeastern Arizona, resulting in five times as much damage as occurred in 1939.

In California the spring brood of leafhoppers remained in the foothills instead of moving out in the valley, as usual, and an enormous second brood matured in May; consequently, the heaviest migration since studies were started in 1930 occurred. The migrants reached the Sacramento Valley from May 10 to but fortunately moved up the east side of the valley, missing the principal areas. Damage to sugar beets, except in small areas, was negligible. There was considerable damage to the tomato crop in the northern part of the San Joaquin Valley. In the early tomato district south of Merced, where the tomatoes are planted closely and staked, and were about ready to produce at the time of the heavy migration, damage was at least 10 percent. In the canning-tomato area from Merced to Stockton, counts showed about 30 percent damage, although one or two fields that were carefully watched lost 60 percent of the plants. In the Sacramento Valley most of the tomatoes were set after migration. Damage, chiefly from the first summer brood, was about 5 percent.

In the Mesilla Valley, N. Mex., and the Salt River Valley of Arizona, where beets are grown for seed, the beet leafhopper infests the fields in the fall, but the damage is not fully evident until the following April. The

numbers of leafhoppers migrating into the beet fields in fall of 1939 were not alarming. Weather conditions during fall and winter were favorable to the insect and breeding occurred in the beets, which was unusual. Curly-top injury in the Salt River Valley was more severe than at any time since the industry was started in 1935. In the Mesilla Valley practically all beet varieties were grown from resistant seed and very little damage occurred. Beet leafhopper migrations into seed crops in fall of 1940 in Salt River Valley were not large. Moderate populations infested the fall crop in Mesilla Valley, N. Mex.

In southern Idaho and northern Utah considerable numbers of leafhoppers went into hibernation, but in California very low populations were present for hibernation.

MEXICAN BEAN BEETLE

During 1940 the Mexican bean beetle was far less numerous than usual in the Ohio River Valley in Ohio. Foliage injury to unsprayed garden beans along the Ohio River did not exceed 50 percent at any time and in most instances was less than that, as compared with conditions that prevail in most seasons, when unsprayed beans are completely defoliated at certain times; however, in the vicinity of Elyria, in the northern part of the State near Lake Erie, considerable damage was done and it was necessary to spray or dust the bean crop. In central Ohio it was also fairly numerous, but less so than in 1939. (N. F. Howard, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

The Mexican bean beetle passed the winter of 1939-40 successfully in eastern Virginia and, owing to unseasonably cold weather in April, began emerging about a week later than usual. The peak of emergence of overwintered beetles from hibernation occurred in the last week in May. The beetle population in many fields of spring snap beans was unusually large, the average infestation on May 27 being 37 beetles and 37 egg masses on 25 feet of row in 1 field under observation. The beetle caused severe damage to bean foliage in many untreated fields of early snap beans but failed to seriously affect yields owing in most instances, to the advanced state of plant growth at time of attack. Although a large population of first-brood beetles was present on summer crops of beans early in July, the infestation was practically wiped out as a result of an unprecedented heat wave throughout the area the latter part of the month. Damage to fall beans was therefore unusually light and insecticide sales were lower than in previous years, according to some dealers. (L. W. Brannon, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

TOMATO FRUIT WORM

The tomato fruitworm was very abundant along the Ohio River in the vicinity of South Point, Ohio, during 1941, when the percentage of wormy fruit reached 44. Records were taken every few days from June 29 to September 20 and it was found that the percentage of wormy fruit ranged from 15 to 44, reaching a peak on July 3 and a secondary peak on September 10. At Columbus and Marietta, Ohio, the natural infestation was very light and it is believed that this was generally the case throughout the State. J. J. Davis, of Indiana, informed me that there was no appreciable damage to canning tomatoes in Indiana during the 1940 season. (N. F. Howard, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

Infestations in southern California in general were very light during 1940 averaging about 4-percent damage for fields harvested during July, August, and September. In one field harvested in October and November, infestation was normal, or about 17.5 percent. The infestation in corn throughout the season was apparently normal, averaging 83 percent for June, 95 percent for July, 80 percent for September, 92 percent for October, and 96 percent for November. (J. Wilcox, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

Infestation by the tomato fruit worm in northern Utah averaged about 4 percent in 1940 and was slightly greater than in 1939. Early sweet corn in June was approximately 30-percent infested with corn earworm of the fourth and fifth instars, and by July almost 100 percent was infested. The infestation of the tomato fruitworm on tomatoes was noticeably higher in the southern part of Davis County than in any of the other tomato-producing districts. Infestation appeared to be greater in fields of rank growth, which was also associated with exuberant blossoming. The first eggs were observed on tomatoes during mid-July and eggs were recovered during the season up to the early part of September, the peak of oviposition of 1.3 eggs per plant occurring in mid-August. The collections from bait traps and light traps were small during 1940, yet the peak of collection from both of these sources occurred during August. Oviposition studies in 1940 showed 92 percent of eggs deposited on tomato plants were recovered on small leaves and 79.2 percent were on the upper surface. F. H. Shirck reported that in 1940 the insect caused injury to tomatoes for the first time in the Parma, Idaho, district. Injury to sweet corn has been common. (H. E. Dorst, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

PEPPER WEEVIL

The 1940 season followed one of the warmest winters experienced for many years in California. A general lack of pepper field and nightshade clean-up until spring allowed an unusually large number of weevils to survive the winter. Weevil infestations, which began early in June, increased very rapidly until an average of 60 percent of the crop was destroyed in Orange and Los Angeles Counties. Infestation records kept in three fields in Orange County and in two fields in Los Angeles County indicated a range of 47- to 89-percent damage, with an average of 64 percent by numbers of pods. Damage by weight is always less than damage by number of pods, because the early, larger, pods survive. Early infestations also occurred in San Diego County, but most of the fields were thoroughly treated, which materially reduced losses. Weevil conditions look more favorable for 1941 because adult weevils entering the winter season were already old, and have less chance of surviving. This was due to the destruction of all small pods and blossom buds by a very large weevil population long before the season was over. Thus there were no young weevils emerging late in the fall to provide a vigorous population which might survive the winter. (Roy E. Campbell and J. C. Elmore, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

PEA WEEVIL

Pea weevil infestation records for the Palouse area of Idaho and Washington for the 1940 crop season show that the average infestation for all localities in Idaho (Palouse area) was 3.75 percent and for all localities in Washington (Palouse area) was 4.17 percent. The average for the area as a whole was 4.17 percent. These figures are considerably lower than the averages for the crop year 1939, which were 8.40 percent for Washington, 10.48 percent for Idaho, and 9.04 percent for the area as a whole. (T. A. Brindley, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

SWEETPOTATO WEEVIL

In the period from July 1937 to the early part of 1940, surveys for sweet potato weevil infestations had been conducted cooperatively with the States in 148 counties in Alabama, Georgia, Mississippi, and Texas. Thirty-nine of these counties (list attached) were found infested, and 26 of this number designated as areas in which the eradication of the weevil would be undertaken cooperatively. They are located in the areas of commercial production where wild host plants do not persist throughout the year, and where the pest does not persist the year round. To the close of 1940, weevils have apparently been eradicated from 11 of the above-named counties, and the number of infestations in other counties drastically reduced. More than 1,200 properties in the eradication areas have been found infested, and through subsequent control activities it has been possible to release 93 percent of these properties from quarantine.

In 1939, 7 counties in southern Arkansas were surveyed without finding the weevil. In 1940, Federal-State cooperative inspection was extended to the part of Louisiana lying north of the area where infestations were known to be generally distributed and no weevils were found. The work was conducted in 28 parishes lying north of and including East Feliciana, West Feliciana, Concordia, Catahoula, La Salle, Grant, Natchitoches, and Sabine. The inspection consisted of checking planting stock in the field, as well as the seed beds, and in some cases wild host plants also.

The counties infested from July 15, 1937, to December 1940, were as follows: Alabama; Baldwin, Butler, Conecuh, Mobile, total, 4; Georgia: Camden, Charlton, Glynn, Thomas, total, 4; Mississippi: Amite, Covington, Forrest, George, Greene, Hancock, Harrison, Jackson, Jefferson Davis, Jones, Lawrence, Marion, Pearl River, Pike, Stone, Walthall, total, 16; Texas: Angelina, Bastrop, Brazos, Cherokee, Gregg, Grimes, Lee, Milam, Nacogdoches, Sabine, San Augustine, Shelby, Smith, Upshur, Walker, Williamson, total, 16; grand total for the 4 States, 40 counties.

1/ Found infested in 1940.

2/ Weevils apparently eradicated from these counties.

HORNWORMS

Hornworms (Protoparce spp.) were much less than normally abundant in the dark fire-cured area in 1940. The adults appeared several days earlier than usual and, as a result, the late June infestation was slightly greater than that of an average year. In July, August, and September, however, the infestation remained at a very low level, and it is doubtful if the average for the season was more than 25 percent of the usual infestation. Some farmers found it unnecessary to apply control measures at any time during the season and few of them treated their tobacco more than twice. Damage was negligible in most fields, and no instance of severe injury was noted during the entire season. It is believed that economic losses did not exceed 1 percent, as compared with the usual loss of approximately 10 percent. In the Kentucky burley area, where hornworms are always less abundant than in the dark fire-cured area, the infestation was unusually light and the damage correspondingly low. It is believed that the unusually cold winter preceding the 1940 season was largely responsible for the paucity of infestation, although the unusual abundance of parasites (Apanteles spp.) in August and September was a contributing cause. (L. B. Scott, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

Despite the severe cold weather in South Carolina, hornworm pupae that were well surrounded by packed soil survived when only 2 inches below the soil surface. On the other hand, those larvae that were surrounded by loose porous soil, even though 7-8 inches below the surface, perished because water that accumulated in the loose soil apparently froze the pupae. The severe winter of 1939-40 apparently did not materially reduce the hornworm population. Where individual cells were used for hibernation studies, the number of pupae to survive was 24.8 percent of those that pupated. Larvae appeared on field plants as early as May 20 and were present throughout the remainder of the season, although they were not as numerous late in the season as in 1939. Population counts on 200 plants in a field during August showed an average of 3.19 worms per infested plant. (N. Allen, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

Infestations in the fields in the vicinity of Oxford, N. C., during 1940, were lighter than usual. In some fields larvae of the first brood in June were abundant enough to make necessary the protection of the small plants. This infestation, heavier than usual for this time of the year, was followed, however, by second-brood infestations, which were much lighter than usual. Fewer moths per trap were caught during 1940 than during previous seasons. (J. U. Gilmore, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

In the Connecticut River Valley only slight damage was done to any fields by hornworms. The predominant species in this region is P. quinquemaculata and usually moderate to severe damage is done to isolated fields. In 1940 no such instances of severe damage occurred but the usual slight damage was found on a few plants in many fields. Parasitization by Apanteles congregatus Say, which is usually heavy, was not much in evidence. (A. W. Morrill, Jr., Bureau of Entomology and Plant Quarantine, U. S. D. A.)

Moth-trap records indicate that the abundance of P. sexta in the Florida-Georgia tobacco districts was about normal. Relatively heavy oviposition during the period May 25 to June 22 was undoubtedly due to individuals of both the spring brood and the first brood. Sun-grown tobacco was injured rather severely in numerous instances, whereas the shade-grown crop sustained only minor losses. (F. S. Chamberlin, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

CORN ROOT WEBWORM

The corn root webworm (Crambus caliginosellus Clem.), known locally as the tobacco crambid, was present in more than the usual number of fields around Clarksville, Tenn., but the infestation was unusually light. Only one report of severe damage was received in the entire season. In the areas where this insect is usually very abundant, the 1940 infestation in fields of newly planted tobacco was not sufficient to cause losses exceeding 3 percent. It is believed that the unusually low temperatures of the preceding winter caused the reduction. (L. B. Scott, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

TOBACCO BUDWORM

Infestations of the tobacco budworm were notably heavier in the Florida-Georgia tobacco district than usual throughout the tobacco-growing season. The insects caused some injury in sun-grown tobacco fields and to the upper leaves in shade-grown crops. (F. S. Chamberlin, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

TOBACCO FLEA BEETLE

At Oxford, N. C., in an open grassy field, there was a beetle survival of Epitrix parvula F. in small cages of from 23.75 to 35 percent and in larger cages of from 15 to 22.83 percent. The average emergence for all cages was 23.25 percent, which is practically the same as in former comparable studies. During April about 150 plant beds were examined over most of the North Carolina flue-cured tobacco-growing areas. Usually 10 $\frac{1}{4}$ -square-foot samples were taken from each bed. The average beetle infestation per square foot ranged from 2.83 in the Border Belt to 5.44 in the Old Belt. These figures were only slightly less than those similarly obtained for 1939, but about two-fifths of the infestation encountered in 1938. The 1940 maximum infestations in the Middle and Old Belts were 21 beetles per square foot of plant-bed area. No records of a State-wide scope were taken during the spring of 1940 of infestations upon newly set tobacco; however, weekly records taken at Oxford, N. C., on a 1-acre field of untreated tobacco showed infestations of not over 5 beetles per plant from May 22 to June 28. In July infestations ranged from 9.97 to 26.97 beetles per plant. Harvest was begun late in July. A nearby field being protected by rotenone dust had on July 25 a maximum infestation of 30.49 beetles per plant. It is true that an infestation of 25 to 30 beetles per plant might cause severe damage to wrapper tobacco, but from 100 to 500 beetles would be needed to seriously injure the flue-cured tobacco plants. Such infestations normally occur in North Carolina late in the season in occasional fields; however, none were observed in 1940.

Cage studies at Florence, S. C., for the 1939-40 season showed that emergence of tobacco flea beetle began at least as early as February 19 and continued

through May 3. The emergence in cages was, for the most part, earlier and faster than that in nature, probably because cage covers produced abnormal conditions. The average survival in 30 cages was 12.28 percent, whereas similar studies in cages covered with heavier cloth in 1938-39 showed a survival of 27.56 percent. The tobacco flea beetle was not as abundant as normal on small plant-bed plants. A brood of beetles emerged in plant beds around June 10 but this emergence was too late to seriously affect the crop because transplanting was completed prior to that time. Where the beetles were permitted to remain undisturbed in the plant beds many plants were severely injured. The tobacco flea beetle was of less importance to field plants than in any year since 1936. Control measures were necessary at only 2 periods during the season. The first period was soon after the plants had been transplanted and the second period was during the latter part of July. Infestations were scattered and the beetles did not occur in outbreak numbers; however, a control experiment was conducted in a field of late tobacco, where the average number of beetles was 73 per plant.

Flea beetles (E. parvula) were less abundant in the Florida-Georgia tobacco districts than for several years. Relatively few applications of insecticides were needed to exert commercial control. The tobacco flea beetle caused moderate damage in an occasional plant bed, but the injury was much less than in an average year. Field injury was moderately severe, insofar as the lower leaves of tobacco were concerned, but, so far as is known, it was not necessary to use control measures in the dark fire-cured area of Tennessee.

POTATO FLEA BEETLE

Probably because of the extremely cold winter and the prolonged period of cold and rain in the spring and early summer, the potato flea beetle (Epidrix cucumeris Harr.) was relatively scarce in tobacco fields of the Connecticut River Valley until the first week in July. This is usually the approximate date of the beginning of second-brood emergence. In 1940 the beetles did not reach normal abundance until just before the later harvest in the first weeks of August. Thereafter they disappeared rapidly.

VEGETABLE WEEVIL

The vegetable weevil, which first attacked tobacco plants in the seedbeds at Quincy, Fla., in 1937, has continued to infest the beds each season. The infestation in 1940 was of moderate intensity but the larvae were sufficiently abundant to require control remedies in numerous instances. (F. S. Chamberlin, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

Larvae of the vegetable weevil were found feeding on small tobacco plants in plant beds in Florence County, S. C., on April 2. Later, adults and larvae were collected in plant beds and a number of the larvae produced adults. This was the first known occurrence of this pest on flue-cured tobacco. (N. Allen, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

TOBACCO THRIPS

The tobacco thrips did not appear in any numbers in the tobacco fields of the Connecticut River Valley until early in July. As usual, individuals could be observed on tobacco plants within a short time after the plants were set, especially on those near grass borders. Populations and damage were less than usual, however, until immediately prior to the harvesting of the crop. Unusually dry weather at this time enabled the thrips to cause somewhat more than normal injury in some fields. (A. W. Morrill, Jr., Bureau of Entomology and Plant Quarantine, U. S. D. A.)

Spring infestations of Frankliniella fusca Hinds appeared to be about normal in the Florida-Georgia tobacco district, but the later generations were of small proportions, owing to the abundant rains. Thrips injury, which is confined to shade-grown tobacco, was of little economic importance this year. (F. S. Chamberlin, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

BOLL WEEVIL

The cycle of comparatively small loss caused by the boll weevil during the last several years continued in 1940 along the Atlantic seaboard but changed upward in other sections. Light defoliations by the cotton leaf worm allowed weevils to continue developing late in the season and above-normal numbers to enter hibernation in the fall of 1939. However, the expected heavy carry-over of weevils into 1940 was fortunately checked by the unusually low temperatures during January. At Tallulah, La., there were freezing temperatures for 20 successive days and a minimum of -8° F. was the coldest ever recorded at that locality. Practically all weevils hibernating in Spanish moss, cornstalks, and similar open shelter were killed. The emergence in hibernation cages was only 0.01 percent, the lowest ever recorded. No live weevils were found in the spring examination of Spanish moss collected from woods near cottonfields in several sections of the State. At Florence, S. C., with a minimum temperature of 13° F., the survival was 0.08 percent. Lower temperatures and survival occurred at Florence in 1936. The survival in cages at Leesburg, Fla., was 11 percent, and at Waco, Tex., 0.09 percent. Previous records are not available for comparison at the latter places. However, weevils hibernating in surface trash were protected from the cold by a heavy covering of snow over a large part of the Cotton Belt, and examinations of woods trash from near cottonfields showed that weevils had survived in protected places. Trash examination at Tallulah showed an average of 2,243 weevils per acre in the fall of 1939 and 190 in the spring of 1940, or a survival of 8.5 percent, as compared with 15 percent in 1939. Similar examinations at Florence in the spring of 1940 showed 176 live weevils per acre, in comparison with 3,582 in 1939. In general, the unusually cold weather reduced the weevil carry-over in 1940 to the lowest point in many years, and damage continued to be very light in North Carolina, South Carolina, Georgia, Florida, and parts of Alabama and Mississippi. In other sections of Alabama, Mississippi, and Texas unseasonably heavy rains retarded the cotton crop and, despite the light carry-over, heavy populations of weevils developed late in the season and caused severe damage. At Tallulah, La., the increased yields from plots dusted with calcium arsenate for weevil control was 54.7 percent, or the greatest since 1926, when it was 68.3 percent.

In the nearby Delata section of Mississippi the damage caused by weevils was much below normal. Damage was also light in southeastern Texas, but a long period of rainy weather during June and July was favorable for rapid multiplication and unusually heavy damage was caused in the blackland area of eastern and central Texas. At Waco, Tex., the yield was more than doubled in many of the experimental plots where weevils were controlled. In the lightly infested areas an abundance of food late in the season allowed weevils to continue increasing until frost and to enter hibernation in excellent conditions; hence, in most sections the number of weevils entering hibernation in the fall of 1940 was above average. (U. C. Loftin, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

COTTON LEAF WORM

The cotton leaf worm situation in 1940 was characterized by the extremely slow and erratic spread of the insect and the small amount of damage it caused. The first leaf worms of the season were found in Cameron County, Tex., near Brownsville, on May 27, 1940, or about the normal time. It was reported from Calhoun County, in southeastern Texas, on July 31; from Marana, Pima County, Ariz., on August 5; from Burleson and McLennan Counties, in central Texas, on August 6; and from Presidio County, in western Texas, on August 10. A separate invasion of moths occurred in Florida as half-grown worms were found near Trenton, Gilchrist County, in the north-central part of the State on June 18, the earliest date recorded in many years. It is also of interest that the first appearance of leaf worms in Florida has been reported from the vicinity of Trenton over a period of years. Spread from this area was also slow. Infestations were reported from Valdosta, Lowndes County, southern Georgia, on July 31 from George County, in the Gulf coast region of Mississippi, on August 1; from Tallulah, Madison Parish, northeastern Louisiana, on August 15; from Washington County, in the Mississippi Delta, on September 28; and from Florence County, S. C., late in October. The leaf worm did not become sufficiently abundant to cause noticeable damage in any section, and for the first time in many years practically no control measures were necessary in 1940. (U. C. Loftin, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

PERIODICAL CICADA

Brood XIV of the periodical cicada occurred over much of the territory from which it has been previously recorded. The old records from Illinois and New Jersey were not confirmed. Neither were several others, particularly those around the edge of the area of great abundance. The records for 1940 are as follows, the counties being underscored:

Alabama: Etowah, Attalla (5 mi. north); Jackson, Woodville.

Indiana: (Southern half of State as far north as La Fayette); Brown; Jefferson; Madison; Lawrence; Tippecanoe, La Fayette.

Kentucky: Adair (entire county), Columbia, Glens Fork; Allen (entire county), Holland, Scottsville; Anderson (entire county), Alton, Glensboro, Lawrenceburg; Barren, Cave City, Glasgow; Bell (entire county), Frakes, Jenson, Middlesboro; Pineville; Boyd (entire county), Ashland, Catlettsburg; Boyle, Danville;

PERIODICAL CICADA

BR. XIV - - 1940



Bracken (entire county), Brooksville; Breathitt (entire county), Curt, Jackson; Brockenridge, Cloverport, Blendean, McDaniels, Mystic; Bullitt, Shepherdsville; Butler, Morgantown; Caldwell, Princeton; Campbell, Newport; Carter (entire county), Grayson, Hitchins; Christian, Hopkinsville; Clark, Wades Mill, Winchester; Edmonson, Brownsville, Chalybeate; Elliott (entire county), Sandy Hook; Estill (entire county), Irvine, Ravenna; Fayette; Franklin, Frankfort; Garrard (eastern and southern); Grant (southern half); Graves, Mayfield. (5 miles east); Grayson (entire county), Big Clifty, Clarkson, Caneyville; Green (entire county), Exie, Greensburg, Gresham, Newt, Summersville; Greenup (entire county), Greenup; Hardin (entire county), Summit, Upton; Harlan (entire county); Cumberland; Hart, Cash, Linwood; Henderson, Anthoston, Niagara; Henry (western half), Campbellsburg, Franklinton, New Castle; Jackson (entire county), Fox-town; Jefferson (eastern and southern), Cedar Grove near Buechel, Louisville, Okolona; Johnson, Paintsville; Kenton, Erlanger, Independence; Knox (entire county), Barbourville; Larue (entire county), Hodgenville; Lawrence, Louisa; Leslie (entire county), Hoskinston, Hyden, Stinnett; Letcher (entire county), Roxana, Sargent, Whitesburg; Logan, Lewisburg, Russellville; McCreary, Cumberland Falls, Pine Knot, Revelo; McLean, Livernore; Madison (entire county), Richmond; Marion (entire county), Lebanon, Loretto; Martin (entire county), Beauty, Inez, Stidham, Warfield; Mason (entire county), Maysville; Meade, Brandenburg; Mercer, McAfee; Metcalfe, Edmonton, Summer Shade; Monroe (entire county), Fountain Run; Morgan, Ezel, Mize; Nelson, Bardstown, Boston; Nicholas (northwestern); Oldham, Ballardsville; Owen (southern half); Owsley (entire county), Booneville; Pendleton (southern half); Perry (entire county), Hazard; Pike (entire county), Carmen, Meta, Virgie, Zebulon; Powell (entire county), Stanton; Pulaski (entire county), Somerset; Robertson (entire county), Mount Olivet; Rockcastle (entire county), Broadhead, Wildie; Rowan (entire county), Farmers; Russell (entire county), Greelsboro, Janestown; Shelby, Peytonia, Shelbyville; Simpson, Franklin; Spencer, Taylorsville, Rivals; Taylor (entire county), Campbellsville; Todd, Allegre, Trenton; Trinble, Bedford, Milton; Warren, Bowling Green; Washington, Springfield; Wayne (entire county), Frazer, Mill Springs; Whitley (entire county), Walden, Williamsburg, Youngs Creek.

Maryland: (On boundary line between Allegany and Washington Counties); Allegany (Sideling Hill, Tonoloway Hill), Cumberland; Baltimore; Baltimore City, Baltimore; Frederick, (Catoctin Mountains), Frederick, Lewistown (3 miles west); Montgomery, Ashton, Silver Spring (Avenal, 4 miles east, and Woodside, 1 mile north); Prince Georges, Beltsville, Berwyn, College Park, Laurel; Washington.

Massachusetts: Barnstable (both sides of Cape Cod Canal at the end of Cape Cod); Bourne, Bournedale, Cataumet, Centerville, Cotuit, East Falmouth, Falmouth, Hyannis, Mashpee, Osterville; Plymouth, Manomet, Plymouth.

New York: Nassau, Bethpage, Farmingdale, Hicksville; Suffolk, Cold Spring Harbor, Commack, Deer Park, Eastport, Huntington, Manorville, Northport, Saint James, Wyandanch.

North Carolina: On the Madison-Yancey County line. Alexander; Alleghany; Avery, Altamont; Buncombe, Asheville; Burke (northwestern, in vicinity of Ashford, McDowell County); Caldwell; Watauga; Wilkes.

Ohio: Adams; Brown, Ripley; Butler; Clermont; Clarke; Clinton; Delaware; Franklin, Columbus (10 miles north); Gallia; Greene, Clifton; Hamilton; Highland; Jackson, Oak Hill; Lawrence, Burlington, Chesapeake, Coal Grove, Hanging Rock, Ironton, North Kenova, Proctorville, South Point, Sybene; Meigs; Montgomery; Pickaway; Pike, Piketon, Sargents, Wakefield; Ross, Chillicothe; Scioto, Franklin Furnace, Haverhill, Lucasville, New Boston, Portsmouth (15 miles northwest in Shawnee forest), Wheelersburg; Warren.

Pennsylvania: Adams, Arendtsville, Bendersville, Biglerville, Flora Dale, Gettysburg, Idaville, Orrtanna, townships of Berwick, Butler, Huntington, Latimore, Menallen, Tyrone; Bedford, Alum Bank, Bedford (also 10 miles north east), Brezewood, Buffalo Mills; Blair, Altoona, Bellwood, Canoe Creek, Martinsburg, Tyrone, Williamsburg, townships of Alleghany, Antis, Catherine, Frankstown, Juniata, Logan, Snyder, Tyrone, Woodbury; Berks, Bernville, Mount Penn, Reading, townships of Brecknock, Caernarvon, Robeson, Union; Bucks, Pleasant Valley, Quakertown, Sellersville; Cambria (northeastern); Centre (entire county), Bellefonte, Centre Hall, Fleming, Mill Hall, Milroy, Philipsburg, Port Matilda, Snow Shoe, State College, Unionville; Chester, Compass, townships of East Brandywine, Highland, Uwchlan, Upper Uwchlan, West Brandywine, West Caln, West Nantmeal, West Sadsbury; Clearfield, Bridgeport, Clearfield, Curwensville, Frenchville, Hawk Run, Karthaus, Lanse, Lumber, Munson, Woodland, townships of Bradford, Cooper, Covington, Girard, Goshen, Karthaus, Lawrence, Morris, Pike; Clinton, Beech Creek, Lock Haven, Loganton, Renovo, townships of Allison, Bald Eagle, Beech Creek, Castanea, Chapman, Colebrook, Crawford, Dunnstable, Gallaher, Grogan, Green, West Keating, East Keating, Lamar, Leidy, Logan, Noves, Pinecreek, Porter, Woodward, Wayne; Columbia (entire county), Bloomsburg, Buckhorn, Mill Grove, townships of Benton, Bloom, Beaver, Briar Creek, Catawissa, Center, Cleveland, Conyngham, Fishing Creek, Franklin, Greenwood, Hemlock, Jackson, Locust, Madison, Maine, Mifflin, Montour, Mount Pleasant, Orange, Pine, Roaring Creek, Scott, Sugarloaf; Cumberland, Carlisle, Mount Holly Springs, Newburg, townships of Dickinson, Goodyear, Penn; Dauphin, Inglenook, townships of Reed, Halifax, Middle Paxton, Upper Paxton, Susquehanna; Franklin, Blackgap, Caledonia, Pen Mar, townships of Antrim, Greene, Guilford, Quincy, Washington; Fulton, Amaranth, Needmore, Warfordsburg; Huntingdon (along William Penn highway), Alexandria, Centre Union, Huntingdon, McAlevys Fort, Petersburg, Todd, Union Church, Union Furnace, townships of Barree, Brady, Carbon, Dublin, Franklin, Henderson, Jackson, Juniata, Logan, Miller, Morris Oneida, Porter, Shirley, Smithfield, Spruce Creek, Todd, Union, Walker, Warriors Mark, West; Juniata, Cocolamus, Mifflintown, townships of Fayette, Fermanagh, Greenwood, Monroe; Lancaster, Brickerville (along highway 322 to Lebanon County line), Gap (at Chester-Lancaster County line); Lackawanna, Jermyrn, township of Scott; Lebanon, Millbach, Newmanstown, townships of Cornwall, Heidelberg, Londonderry, Mill Creek, South Annville, West Cornwall; Lehigh, Slatington, Zionsville; Luzerne, Hazleton, Kytte, Laflin, Laurel Run, Wilkes-Barre, townships of Bear Creek, Dennison, Fairmount, Hanover, Plains; Lycoming (entire county), Marsh Hill, Williamsport, townships of Anthony, Armstrong, Brady, Brown, Cascade, Clinton, Cogan House, Cummings, Eldred, Fairfield, Franklin, Gamble, Hepburn, Jackson, Jordon, Lewis, Limestone, Loyalsock, Lycoming, McHenry, McIntyre, McNett, Mifflin, Mill Creek, Moreland, Muncy, Muncy Creek, Nippenose, Old Lycoming, Penn, Piatt, Pine, Plunketts Creek, Porter, Shrewsbury, Susquehanna, Upper Fair-

field, Watson, Washington, Wolf, Woodward; Mifflin, Allensville, Belleville, Lewistown, Milroy, Newton, Hamilton, Yeagertown, townships of Armagh, Bratton, Brown, Decatur, Derry, Granville, Menno, Oliver, Union; Wayne; Montour (entire county), Danville, Washingtonville, townships of Anthony, Cooper, Derry, Limestone, Liberty, Valley, West Hemlock, Mahoning, Mayberry; Northumberland (entire county), Milton, Mount Carmel, Northumberland, Paxinos, Potts Grove, Shamokin, Sunbury, townships of Coal, Delaware, East Cameron, East Chillisquaque, Gearhart, Jackson, Jordan, Lewis, Little Mahanoy, Lower Augusta, Lower Mahanoy, Mount Carmel, Point, Ralpho, Rockefeller, Rush, Shamokin, Turbot, Umer Augusta, Upper Mahanoy, Washington, West Cameron, West Chillisquaque, Zerbe; Perry (on Blue Mountain from Marysville at the Susquehanna River to Starrets Gap), Duncannon, Elliottsburg, Liverpool, Marysville, New Bloomfield, Newport, Shermans Dale, townships of Buffalo, Carroll, Center, Greenwood, Howe, Liverpool, Miller, Oliver, Penn, Rye Spring; Schuylkill, Shempton, townships of Barry, Butler, Branch, Cass, Hagens, Hubloy, Union; Snyder, Beavertown, Freeburg, Middleburg, Port Trevorton, Rolling Green Park, Selinsgrove, Shamokin Dam, Troxelville, townships of Adams, Beaver, Center, Chapman, Franklin, Jackson, Middlecreek, Monroe, Penn, Perry Spring, Union, Washington, West Beaver, West Perry; Union, Allenwood, Buffalo Valley, Hartleton, Lewisburg, Mifflinburg, Millmont, New Berlin, New Columbia, Winfield, townships of Buffalo, East Buffalo, Gregg, Hartley, Kelly, Lewis, Limestone, Union, West Buffalo, White Deer; York, Dillsburg, Dover, Hanover, Hellam, Mount Wolf, Woodbine, York (10 mi. west), townships of Conewago, East Manchester (Conewago Hills), Hellam, Paradise.

Tennessee: Anderson; Blount (Chilhowee Mountain); Campbell; Coffee; Cumberland; Davidson; De Kalb; Fentress; Franklin; Hamilton (along U. S. Highway 27, from Sale Creek to the Rhea County line); Knox (in area between Knoxville and Norris Dam); Marion, Martin Springs; Montgomery, Clarksville; Futnan, Cockeville; Roane; Robertson, Springfield; Sullivan, Bristol; Union, Maynardville; Warren.

Virginia: Albemarle, Crozet; Augusta, Churchville, Staunton, Stuarts Draft, Waynesboro; Clarke; Fairfax, El-Nido, Vienna; Frederick, Gore; Rockingham, Timberville; Shenandoah.

West Virginia: Berkeley, Gerrardstown, Glengary; Boone; Cabell; Jackson; Kanawha, Charleston; Lincoln; Logan; McDowell; Mason; Mercer; Mingo; Futnan; Wayne; Wyoming.

EASTERN HEMLOCK BORER

Examination of the root systems of 30 hemlock trees in stands on the Menominee Indian Reservation, washed out in 1939 and 1940, has conclusively shown that the eastern hemlock borer (Melanophila fulvoguttata Harr.) can successfully attack eastern hemlock only when the trees are definitely dying from other causes. Therefore this borer should be considered as a secondary insect. The succession of consecutive drought years in this region from 1930 to 1937 was the primary cause of the heavy hemlock mortality in these stands. There was a noticeable reduction in the abundance of the beetles in 1940 for the first time since the study was started in 1937. This is apparently be-

cause the very favorable growing seasons of 1938 and 1939 caused a resumption of vigorous growth. In a group of experimental plots having a total acreage of 16 acres, the average tree mortality has dropped from 15.4 percent by volume in board feet in 1938 to 5.9 percent in 1939 and to 0.6 percent in 1940. Because of the excellent growing season of 1940, it is expected that this reduction of mortality will be continued in 1941 and that the beetles will be even less abundant than in 1940.

SPRUCE BUDWORM

Infestations in jack pine stands on the Chippewa National Forest in northern Minnesota declined in 1940, and defoliation was not noticeable in any of the ranger districts. The precipitation was above normal and there was a great improvement in stands that were heavily defoliated in 1938. The 1940 foliage was very vigorous, and many of the trees which were weakened by drought as well as by defoliation in the upper part of the crown appeared to be recovering. (H. J. MacAloney, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

SMALLER EUROPEAN ELM BARK BEETLE

State workers in New Hampshire have supplied a number of distribution records for the lower third of that State. They report having taken the species as far north as Franklin and Gilmanston and as far west as Richmond. State and Government workers have found it in a number of additional towns in northwestern Connecticut, southwestern Massachusetts, southeastern New York, and northeastern Pennsylvania, which extend the limits of the known infested area that radiates from New York City. (C. W. Collins, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

MOUNTAIN PINE BEETLE

Surveys of white pine stands within the Inland Empire show an annual loss of 91,000,000 board feet of valuable timber resulting from the attacks of the mountain pine beetle. This loss, which is one-fourth of the volume cut for lumber, is being reduced by the practice of treating all centers, or "hot spots," of infestation, which has apparently prevented the development of severe epidemic outbreaks. There are two potentially dangerous areas of infestation in the white pine stands of northern Idaho for which control measures have been recommended. Although this insect continues its destructiveness in the whitebark pine stands of the northern Rocky Mountains, there are only light losses within the lodgepole pine stands of the same area. (J. C. Evenden, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

WESTERN PINE BEETLE

Throughout the ponderosa pine stands of central Idaho and Montana the western pine beetle (Dendroctonus brevicornis Lec.) continues to take a fairly constant annual toll of approximately 0.6 percent of the total volume. (J. C. Evenden, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

During 1940 the losses caused by the western pine beetle (Dendroctonus brevicornis Lec.) in Oregon and Washington continued on an upward trend from the low point reached in 1937. The tentative 1940 loss figure for the ponderosa pine stands in the two States has been set at 520 million board feet, as compared with 470 million in 1939 and 380 million in 1937. In certain areas in Oregon these losses assumed epidemic proportions and necessitated direct control measures. Control projects were approved and were started on the Fremont and Malheur National Forests. On the Deschutes National Forest, the Warm Springs Indian Reservation, and certain private lands in southern Oregon maintenance control work was again undertaken. (F. P. Keen, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

During 1940 heavy infestations of ponderosa pine stands were local, rather than general, throughout California. In the northeastern part of the State group kills continued through the summer, but overwintering broods in most areas will be found chiefly as single tree infestations in which large trees are involved. Notwithstanding the lack of spectacular epidemic infestation, fall surveys show that most of the current loss, which amounts to between 75 and 100 board feet per acre in northern California, remains heavy and averages about the same as in 1939. In the stands in the coast and Sierra ranges the loss is considerably less; however, in central and southern California endemic infestations are of sufficient importance to necessitate maintenance control projects in valuable recreational centers. (J. M. Miller, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

DOUGLAS FIR BEETLE

The widespread outbreak of the Douglas fir beetle (Dendroctonus pseudotsugae Hopk.) continues without any noticeable abatement throughout the northern Rocky Mountain region. This infestation is so extensive that control is prohibitive, aside from areas where timber stands have a high commercial or aesthetic value. (J. C. Evenden, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

Only three minor outbreaks of the Douglas fir beetle (Dendroctonus pseudotsugae Hopk.) in Oregon and Washington were reported in 1940. Two of these outbreaks were in Oregon in fire-scorched trees adjacent to recent burns, and one outbreak was in Mount Rainier National Park, Wash. In the Rocky Mountain region the Douglas fir beetle continued to cause widespread destruction of Douglas fir. Losses caused by this insect continued at a high level in the forests of Wyoming, Colorado, and Utah. At the end of the year there were no marked signs indicating a subsidence of the current infestation. (F. P. Keen, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

BLACK HILLS BEETLE

Infestation by the Black Hills beetle (Dendroctonus ponderosae Hopk.) in the pine stands of Colorado and southern Wyoming continued to show a marked decrease from the epidemic conditions of recent years. This decrease first became evident in 1939 following an intensive control program on private, State, and Federal lands. At present the infestation has been so reduced that only a few small clean-up projects are necessary during the 1940-41 season.

These will be carried out on the Black Hills, Medicine Bow, Roosevelt, and Pike National Forests. In Utah the current infestation is considerably more aggressive. Treatment of approximately 17,000 infested ponderosa pines on the Powell National Forest during the winter of 1939-40 caused a 92-percent reduction on the treated area. A residual infestation of 6,000 trees chiefly on the untreated areas remains to be treated this winter. On the Wasatch National Forest the current Black Hills beetle infestation in lodgepole pine stands has reached epidemic proportions. An extensive control program is being conducted against this infestation and it is hoped that by spring the areas of heaviest concentration will have been covered. (F. P. Keen, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

JEFFREY PINE BEETLE

Throughout the Jeffrey pine stands of northeastern California surveys showed a marked increase in loss resulting from current infestations by the Jeffrey pine beetle. A considerable portion of the 124 board-foot-per-acre loss in the Lassen Forest and over half the 200 board-foot-per-acre loss cruise on the Plumas Forest area was loss in Jeffrey pine. In spite of this activity, surveys of the Mono and Inyo stands to the south show very little activity and loss. (J. M. Miller, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

ENGELMANN SPRUCE BEETLE

The sudden epidemic flare-up of the Engelmann spruce beetle (Dendroctonus engelmanni Hopk.) which occurred some 4 years ago and resulted in a tremendous destruction of spruce within the Yellowstone National Park and other areas, has decreased materially in severity. Although there are a few scattered light infestations of this insect within the northern Rocky Mountains, the epidemic has died down, owing in many areas to the lack of host material. (J. C. Evenden, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

ENGRAVER BEETLE

The Oregon pine engraver (Ips oregoni Eichh.) continues its spot killing of small areas of ponderosa pine reproduction and small trees throughout the Inland Empire. These small flare-up infestations are in most cases associated with sporadic logging or wood-cutting operations. Such outbreaks are short-lived and control measures are seldom necessary. (J. C. Evenden, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

DOUGLAS FIR TUSsock MOTH

The outbreak of the Douglas fir tussock moth (Hemerocampa pseudotsugata McD.), which during the last few years destroyed some rather large patches of Douglas fir within the Sawtooth National Forest, has decreased to where no visible defoliation has occurred during the last two seasons. Associated with the Douglas fir tussock moth during this outbreak were large numbers of a geometrid defoliator, (Nerytia canosaria var. Wlk. The combined feeding of these two species of insects resulted in a complete defoliation of the trees. (J. C. Evenden, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

EUROPEAN SPRUCE SAWFLY

The outstanding feature affecting the European spruce sawfly situation in the United States during 1940 has been the widespread and general mortality of larvae caused by "disease." The infestation in the severely defoliated areas of southern Vermont and southern New Hampshire has been reduced to a very low point. In many areas where there was a high population of overwintering cocoons during 1939-40, and where heavy defoliation was expected in 1940, there was only slight feeding. Owing to the relatively low percentage of cocoons remaining in diapause in these sections, there is now a very low population of living cocoons in hibernation and most of those present are found on the outskirts of the areas formerly affected severely. There has been a considerable mortality of pasture spruce and spruce growing in rather open growth in southern Vermont, but in closed stands mortality has been comparatively low. Severest mortality has apparently followed the 1938 feeding, and this may have been caused in part by the exceptionally dry season of 1939. The presence of larval disease was noted at a number of places in Maine in September, and very few living larvae could be found at points visited. On the other hand there is a considerable holdover of cocoons in Maine and, therefore, a considerable population of living cocoons in hibernation at many places. It is expected that adults will emerge from many of these cocoons next spring. Whether disease will affect the larvae next year is problematical. A number of severely infested trees near the mouth of the Allagash River at East Twin Brook have died. Notwithstanding the prevalence of larval "disease" and the reduction in infestation in the general area, some places have shown an increase in infestation and have light to medium infestations at the present time. These include Mt. Cornell in the Catskills of New York; Green Peak, Mt. Equinox, and Mt. Abraham, in Vermont; North Pack Monadnock, Crotched Mountain, Bald Peak, and Deer Mountain, in New Hampshire. (R. C. Brown, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

A PINE SAWFLY

Gilpinia frutetorum F. is an introduction from Europe and apparently has been established in North America for many years, as it is now known to occur in the States of Connecticut, Massachusetts, New Hampshire, New Jersey, and New York and in a few localities in Ontario, Canada. Until recently it had never attracted any attention in this country. Observations made in 1939 and 1940 indicate that this species is increasing in some localities in New England and New York, although as yet it is not abundant enough to have caused serious defoliation. The larvae feed on red and Scotch pine. They are solitary in habit and their color blends with that of the pine foliage, so they are easily overlooked unless rather abundant. There is one generation and at least a partial second generation each year in New England. (R. C. Brown, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

LECONTE'S SAWFLY

Observations made and reports received indicate that Neodiprion lecontei Fitch was more prevalent in 1940 than usual in many localities in New England and New York. It rarely, if ever, causes extensive defoliation in natural stands, usually attacking a single pine tree or groups of trees growing more

or less in the open; however, it is a serious pest in pine plantations. One observer reported that a red pine plantation of 20 acres in Franklin County, N. Y., was entirely ruined during the last 2 years by this insect. Some serious defoliation in pine plantations was also reported in several counties in northern New York, and in Bennington County, Vt.

A RED PINE SAWFLY

An undescribed species of Neodiprion has been causing considerable concern to owners of red pine plantations in rather widely separated localities in New Hampshire, Vermont, and Massachusetts since 1935. It caused some serious defoliation in the spring of 1940 in a few plantations in Massachusetts, New Hampshire, and New York, and in one natural stand of red pine at Groton, Mass. (R. C. Brown, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

LARCH SAWFLY

The outbreak of the eastern larch sawfly (Nematus (Lygaconematus) erichsonii Hartig), which appeared near the Canadian border in the Blackfoot National Forest in 1933, has spread southward. Last season infested areas were recorded on the Coeur d'Alene National Forest, where the defoliation was quite severe. (J. C. Evenden, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

FOREST TENT CATERPILLAR

Observations made and reports received in 1940 indicate that the outbreak, which has been rampant throughout the southern half of Vermont and the western part of Massachusetts since 1935, has now subsided. The defoliation in 1940 has been rather light and the infestations extremely local, except in an area in western Massachusetts near the New York line, where the feeding was rather heavy over a considerable area, particularly in the town of Richmond. Reports from New York indicate that severe defoliation occurred in Madison, Chenango, Otsego, Delaware, Sullivan, and Broome Counties. Many areas in woodlands and maple groves ranging from about 5 to 100 acres or more in extent were from 75 to 90 percent defoliated. (R. C. Brown, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

TENT CATERPILLARS

Outbreaks were widespread in Oregon during 1940. Defoliations were reported on many broad-leaved tree species, including alder, willow, poplar, cherry, and apple. (F. P. Keen, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

An epidemic of Malacosoma fragilis (Stretch) on bitterbrush (Purshia tridentata) on the Deschutes National Forest, Oreg., reported in 1939 was brought under control by natural factors. In 1940 there was little evidence of the severe defoliation which has characterized the infested area during the last 2 years. (F. P. Keen, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

SADDLED PROMINENT

Various reports received indicate that the larvae of this species were locally abundant in the White Mountain area of New Hampshire, the counties of Windham and Rutland, Vt., and the Catskill Mountain area in New York. A stand of maple and beech covering an area of between 1 and 2 square miles on Herrick Mountain in Rutland County, Vt., was heavily defoliated in July 1940. (R. C. Brown, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

BETCH SCALE

An examination made in September 1940 of permanent sample plots located in eastern and central Maine revealed a slight decrease in intensity of infestation. However, reports from north-central Maine indicate very heavy infestation of the scale and infection with Nectria, a fungus which follows the scale. No appreciable increase in severity was observed in the infestation at Bartlett, N. H., in the White Mountain region. This insect is now generally distributed throughout Westchester County, N. Y., and has been found west of the Hudson River. (R. C. Brown, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

GYPSY MOTH

The hatch of gypsy moth egg clusters in 1940 was somewhat varied, especially in Vermont, ranging from 51 to 82 percent, with an average of 69 percent; in Massachusetts the average hatch was 90 percent; in Connecticut, 96 percent. Winter-killing of egg clusters was light. Hatching was late, but late spring mortality was pronounced. In Maine there was a slight increase in defoliation in 1940, over that recorded in 1939. In New Hampshire there was an increase of 16,000 acres, located around Concord and north to Lake Winnepesaukee. In Vermont there was a considerable decrease, all gradations of defoliation being less than in 1939. In Massachusetts there was about a 10-percent decrease in total defoliation from that recorded in 1939. In Barnstable, Hampshire, Franklin, and Hampden Counties there was a large decrease in the number of acres showing defoliation. In Hampshire, Franklin, and Hampden Counties no 100-percent defoliation was recorded. In Norfolk and Worcester Counties there was a slight decrease, and in Bristol, Middlesex, and Plymouth Counties a considerable increase. A slight increase was recorded in Dukes and Essex Counties, and no defoliation reported from Berkshire, Nantucket, and Suffolk Counties. In Rhode Island there was a decrease of over 90 percent in total defoliation from that recorded in 1939. In Connecticut no noticeable defoliation was recorded in 1940. (A. F. Burgess, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

Parasetigena silvestris R. D. is a valuable larval parasite of the gypsy moth in Central Europe, commonly destroying 35 percent of this insect when it occurs under epidemic conditions. This parasite was, over a period of years, imported and liberated in 22 towns in New England. For the first time, in the summer of 1940, it was recovered in several localities in Massachusetts in such encouraging numbers as to indicate that it ultimately should be an excellent addition to the sequence of gypsy moth parasites already established in this country. (R. C. Brown, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

BROWN-TAIL MOTH

During the summer of 1940 there were a few reports of defoliation by this insect. In south-central and southeastern New Hampshire there were several localities where apple orchards and elms were completely defoliated. Some defoliation was also reported from Maine. According to reports received from Maine, New Hampshire, and Massachusetts, the total number of brown-tail moth webs cut by State or local authorities during the winter of 1939-40 was considerably greater in Maine and New Hampshire and less in Massachusetts. In Maine the number increased from 974,000 in 1938-39 to 1,469,000 in 1939-40. In New Hampshire, with about the same number of men working, 515,000 webs were cut in 1939-40, as compared with 117,000 cut in the winter of 1938-39. In Massachusetts the number of webs cut in 1939-40 decreased considerably. During this time 254,000 webs were cut, whereas in 1938-39 a total of 644,000 webs were destroyed. (A. F. Burgess, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

SCREWWORMS

Adult activity in Texas, as indicated by status and survey traps (48 traps) was 50 percent or more below normal for January and February 1940 in all of the overwintering area. Winter survival was approximately normal on the western Balcones Escarpment and much below normal on the Rio Grande and Gulf Plains. No overwintering was indicated on the eastern Balcones Escarpment. From March to the middle of May the build-up was much below normal and increase in abundance was slight. An unusual increase of adults occurred the latter part of May, and the population over all the western Balcones Escarpment was above normal from June to September, and above normal on the eastern Balcones Escarpment and on the Edwards Plateau during August and September. In all of these northern areas the October and November increase was marked, and the adult activity was below normal. At the end of 1940 the usual late December increase was indicated on the west-south escarpment. Over the Rio Grande and Gulf Plains the fly populations have been very low during the entire year, excepting the Laredo-Rio Grande City area which has had a marked increase in adults during November. Migration of the fly into central Texas and Oklahoma was at the usual rate of spread; that is, the fly reached central Texas soon after May 1 and was in southern Oklahoma after approximately June 1. Reports from Jackson and Vicksburg, Miss., and from Tallulah and Shreveport, La., indicated that the fly had not reached these places early in September. Some cases were reported at Palestine, Tex., in August and early in September. Reports from Arizona indicated the fly to be normal or above normal in activity. A survey in California (Sept. 19-30) indicated the fly to be abnormally abundant over the southern part of the State and as far north as Redding, in the Sacramento Valley. The first known positive identification in Lake County was recorded late in September. The winter was abnormally mild in California and the early spring floods in the upper Sacramento Valley were conducive to the outbreak. (D. C. Farman and W. L. Barrett, Jr., Bureau of Entomology and Plant Quarantine, U. S. D. A.)

County agents of Florida reported that screwworm cases were less plentiful during 1940 than during any preceding year since the pest became established in the Southeast. Localized cases were reported in Escambia, Holmes, and

Gadsden Counties, of western Florida, and in Madison, Taylor, Hamilton, and Nassau Counties, of northern Florida. During September and October a high incidence occurred in the vicinity of Starke, Palatka, and St. Augustine, Fla., and along the west coast another endemic area extended from Dunnellon southward to Punta Gorda. County agricultural agents were of the opinion that most of the cases in the two principal foci developed in hogs which roamed the woods and that bites caused by the Gulf coast tick were the principal predisposing causes. (W. E. Dove, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

I believe the screwworms were worse in 1940 than they have been since 1935, the year in which they were so severe. The infestation was general over most of the State but not so severe as it was in some of the Southern States. In the weekly county agents' reports on conditions on livestock, they did not report any loss because of screwworms. (C. F. Stiles, extension entomologist, Stillwater, Okla.)

Weather conditions have been very mild in Arizona for 3 years; consequently there has been little or no destruction of these flies. Last year screwworms infested susceptible wounds during each month. Probably our worst season was during October, November, and December. This year they have been bad during the summer and fall. Many stock men report that this has been the worst year of their experience. (W. J. Pistor, University of Arizona.)

STABLEFLY

In the Southwest the stablefly has been more abundant and has caused more injury during 1940 than at any other time during the last 4 years. Reports have been received from dairymen, livestock breeders, and feeders, and hog raisers that they have had an unusual amount of stablefly annoyance during the 1940 fly season. Complaints were common from residents of Dallas that they were driven indoors by the bites of stableflies and that pet dogs suffered sore ears as a result of the bites of these flies. Dairy cattle and especially young calves were severely annoyed, practically all year long. At times as many as 400 stableflies per animal were estimated during the late afternoon hours. The season was the longest ever noticed in the vicinity of Dallas. As late as the first week in December thousands of engorged adults were noticed on the walls and fences of calf barns and on the animals themselves in the vicinity of Dallas. In one instance during the first week in December calves were so annoyed that they sought shelter in fence corners or in dark places in the barns. The period of annoyance was approximately 8 months. (E. W. Laake, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

In northwestern Florida, where it is known as the "dog fly," there were no extensive outbreaks, and no deaths were reported from attacks from the flies. This was a distinct contrast to 1939 when it was reported that flies caused some tourists to leave the beaches. One stockman reported that in 1939 about 500 cattle, or one-fifth of the herd owned by him, became mired and died in the swamps where they were driven by the flies. Large but sporadic numbers of the flies appeared on beaches in 1940 from August 4 to 6, from September 5 to 15, from December 10 to 15, and from December 20 to 27. The abundance of the flies in September coincided with the emergence of adults from nearby marine grass deposits on beaches. The occurrences in December when there was

no marine grass for breeding, coincided with the emergence of outbreak numbers from peanut litter in fields of western Florida, southern Alabama, and southwestern Georgia. The emergence of December was followed by some cold weather which held the flies in check. The very strong circumstantial evidence of flight of flies from peanut fields to the beaches during December suggests that dog flies are capable of flying much farther than anticipated. It adds credence to reports of fishermen that dog flies appear as far as 75 to 100 miles off shore in sufficient numbers to annoy persons engaged in deep-sea fishing. (W. E. Dove, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

HORN FLIES

The abundance of horn flies on cattle in the Dallas-Fort Worth, Tex., area during 1940 was below the average for the last 4 years. This reduction in horn fly populations was due, primarily, to the prolonged drought last summer. Infestations of 3,500 to 4,000 flies per head were commonly observed on cattle in the previous 3 years, but in 1940 infestations seldom exceeded 3,000 flies per head. Horn flies were abundant on cattle in Jefferson County, Okla., in 1940. No data are available with which to compare this year's infestations with those of previous years; however, the county agent reports that horn flies were much more numerous and pestiferous in 1940 than for several years. Climatic conditions in Jefferson County were favorable for horn fly development because of the unusually frequent rains during the summer, which provided about 27 inches of moisture in 4 months. Horn fly infestations on cattle in the vicinity of Waurika, Okla., were estimated at 1,200 to 2,000 per head. In general, it may be stated that horn flies are usually abundant on cattle in the area from Dallas, Tex., west to Cresson, Tex., and north to Waurika, Okla. This area of horn fly abundance is, undoubtedly, more extensive and its limits have not been determined. (E. W. Laake, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

COMMON CATTLE GRUB

In the vicinity of Dallas, Tex., cattle grubs were more abundant, especially in dairy animals, during the 1940 season than during 1939. The number per animal in mid-December ranged from none to 50, with some cows in practically every herd having at least 20 grubs each. In northwestern Texas, where cattle grubs are always abundant, the population this year is approximately normal. The heaviest infestation, as usual, is encountered in the younger animals, many of which have over 20 and some over 30 grubs per head. In eastern Texas, where the cattle industry has expanded tremendously during the last few years, cattle grubs are apparently not so abundant as in northwestern Texas, but lightly to heavily infested animals are found in practically every herd. The appearance of cattle grubs in the backs of animals was apparently at the normal time in the northwestern Texas area, whereas in the vicinity of Dallas and especially in eastern Texas, it was from 2 weeks to 1 month later than usual. As a whole, the cattle grub situation is serious and causes a tremendous loss in flesh and milk and damage to hides. In the ranch country the running of animals by heel flies in the spring, when animals have just come out of the winter in a poor and weakened condition, has caused heavy damage, particularly to feeder stock. Stockmen from many counties in

north-central and northwestern Texas have asked for aid in the control of this important pest. In southern Oklahoma and in northwestern Texas considerable effort is being expended by county agents, dairymen, and ranchmen in an attempt to control cattle grubs by methods recommended by the Bureau, and many other livestock owners are using various commercial concoctions in an attempt to alleviate the cattle grub situation. (E. W. Laake, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

CLEAR LAKE GNAT

In the Lakeport and Nice area of California the Clear Lake gnat (Chaoborus astictopus D. & S.) was more numerous generally during 1940 than in 1939. Status traps took 32 percent more gnats in 1940 than in 1939. The gnat was reported as much less abundant and annoying at Lake Pillsbury, a small lake 30 miles north of Clear Lake, than for several years. (A. W. Lindquist, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

SANDFLIES

Sandflies had the usual seasonal occurrence of Culicoides canithorax Hoff. during the spring and autumn months from grass-marsh areas, and the usual emergence of C. furens Foey from mangrove and pickleweed marshes. The latter reached its highest incidence of the year from January 15 to February 10, declined about half by April 15, and then reached another peak about June 15. By September 15 the pest was of little economic importance and remained with a low incidence from October 1 to December 31. Pyrethrum is being used more generally with satisfactory results in treating screens of windows of houses and for protecting the arms and faces of persons working in the vicinity of marshes. The disease of children, known in the Southeast as sandfly fever, has not been reported this season. (W. E. Dove, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

HUMAN FLEA

Specimens were submitted for the first time from West Virginia, where a heavily infested barn was reported at Fort Gay. (H. L. Trembley, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

LONG-NOSED CATTLE LOUSE

Heavy infestations of Linognathus vituli are general, especially in young white-faced cattle in northwestern Texas. Ranchmen in some northwestern counties claim that 100 percent of their animals were infested in December 1940. Much dipping for the control of this louse is in progress in various western Texas counties. In the vicinity of Dallas, and also in eastern Texas, infestations are common, especially in the younger animals. The larger ranches in the eastern Texas area are also dipping their cattle extensively for the control of this louse. The general abundance of this louse during 1940 was, according to reports, somewhat above normal and considerable damage to young stock was reported. (E. W. Laake, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

SHORT-NOSED CATTLE LOUSE

In northwestern Texas, particularly the Panhandle area, Haematopinus eurysternus Nitz. is exceedingly abundant on some individual range animals. As is usually the case with this insect, only certain animals, which for some unknown reason are more susceptible than others, are subject to tremendous infestations, whereas many in the same herd appear to be free of this pest. The infestation during 1940 was general but apparently no more severe than during previous years. (T. W. Laake, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

AMERICAN DOG TICK

In general, the American dog tick appeared to be normal, or slightly below in abundance in the Eastern States during 1940. In southeastern Massachusetts, however, ticks were much less numerous than during 1939, and, in some adjacent localities, fewer than they had been for many years. The isolated area of infestation around Lake Winnepesaukee, N. H., was found to have extended northward, the tick occurring apparently for the first time at a point a few miles south of Conway. Rocky Mountain spotted fever, which is transmitted by this tick in the Central and Eastern States, showed a distinct decrease, according to reports published by the United States Public Health Service in Public Health Reports. Through November a total of 232 cases were reported in 1940, as compared to 347 in 1939 and 242 in 1938. The disease was reported in 10 cases in Oklahoma in 1940 whereas in 1939 none had been reported west of Iowa and Missouri. The number of cases in the Western States, where the principal carrier is D. andersoni Stiles, showed a constant increase, from 118 in 1938, 169 in 1939, to 180 in 1940. (F. C. Bishopp, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

WINTER HORSE TICK

The problem of the winter horse tick (Dermacentor nigrolineatus (Pack.)) in Texas is principally confined to the thick brushy sections along the escarpment of the Edwards Plateau, although during some years trouble from this pest may extend well up on the plateau itself, along some of the valleys of the rivers which head farther north than the escarpment, and into the flat plains country south of the plateau. The ticks as a rule do not begin attacking animals until about the middle of November and continue until well into February. They cause considerable injury and death loss among horses, the principal host. Animals are infested over the entire body and it is not uncommon to see several thousand ticks on a single horse. In heavily infested animals serious symptoms are early apparent, notably the extensive swelling along the larger veins on the belly. This is followed by a rapid decline in the health of the animal and death frequently ensues if the ticks are not destroyed. During 1940 heavy infestations began to appear about the first of December in the eastern end of the escarpment area and subsequent reports from ranchmen indicate that considerable trouble is now being experienced all along the edge of the plateau and as far north as Sonora and Menard, Tex. Ranchmen report that the infestations are much heavier than in 1939 and that a number of animals have already died from the attacks of the tick. (E. C. Cushing, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

BROWN DOG TICK

This tick is becoming more widely distributed each year. It was reported from many new localities and from four new States during 1940--Colorado, Minnesota, Nebraska, and Tennessee. (F. C. Bishop, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

GULF COAST TICK

Throughout Florida, Gulf coast ticks were reported commonly from livestock in 1940, and some county agricultural agents state that this pest again served as a principal cause of screwworms along the west coast of the Florida Peninsula. The occurrence of large numbers of ticks on the ears of untreated hogs in the woods enables the pest to continue development of large numbers of ticks for infestations of different animals next year. (W. B. Dove, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

EAR TICK

During 1940, the spinose ear tick increased to such proportions in the Edwards Plateau area of Texas that many ranchmen deemed it advisable to follow a systematic treatment of the ears of cattle to reduce the injury inflicted by screwworm infestations resulting from the attacks of the ticks. Although the tick attacks the ears of most species of domestic livestock, cattle appear to suffer the greater injury during 1940. In sheep and cattle preliminary surveys indicated that approximately 40 percent were infested. (E. C. Cushing, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

CORRECTION:

In the note by G. F. Knowlton, on p. 500 of the Insect Pest Survey Bulletin (v. 20, No. 9, Nov. 1, 1940) Empoasca cucumeris should be E. filamenta De Long.

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*

Empoasca cucumis should read E. fabae.

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The common names approved by the American Association of Economic Entomologists are indicated by the letters a.n.o. (American name, official).

Achenon sphinx a.n.o. -----	Pholus achenon (Drury)
Alfalfa caterpillar a.n.o. -----	Colias eurytheme Bdv.
Alfalfa looper a.n.o. -----	Autographa californica (Speyer)
Alfalfa webworm a.n.o. -----	Loxostege connixtalis (Walk.)
Alfalfa weevil a.n.o. -----	Hypocera postica (Gyll.)
Almond moth a.n.o. -----	Ephestia cautella (Walk.)
American dog tick a.n.o. -----	Dermacentor variabilis (Say)
Angoumois grain moth a.n.o. -----	Sitotroga cerealella (Oliv.)
Apple aphid a.n.o. -----	Anhis pomi Deg.
Apple maggot a.n.o. -----	Rhagoletis pomonella (Walsh)
Apple redbug a.n.o. -----	Lygidea mordax Reut.
Apple seed chalcid a.n.o. -----	Callinome druparum (Beh.)
Arborvitae aphid -----	Cinara tujaefilina Del G.
Arborvitae leaf miner a.n.o. -----	Argyresthia thuicella (Pack.)
Argentine ant a.n.o. -----	Iridomyrmex humilis Mayr
Argus tortoise beetle a.n.o. -----	Chelymorpha cassidea (F.)
Army cutworm a.n.o. -----	Chorizagrotis auxiliaris (Grote)
Armyworm a.n.o. -----	Cirphis unipuncta (Haw.)
Ash flower gall -----	Eriophyes fraxiniflora Felt
Asiatic garden beetle a.n.o. -----	Autoserica castanea (Arrow)
Asparagus beetle a.n.o. -----	Crioceris asparagi (L.)
Asparagus miner a.n.o. -----	Agromyza similis Loew
Azalea lacebug -----	Stophanitis pyrioides Scott
Azalea leaf miner -----	Gracilaria azaleicola Brants
Azalea scale -----	Ericococcus azaleae Const.

Azalea whitefly -----	Alcurodes azaleae (B. & M.)
Bagworm a.n.o. -----	Thyridopteryx ephemeraeformis (Haw.)
Banded ash borer -----	Neoclytus caprea (Say)
Banded cucumber beetle a.n.o. ---	Diabrotica balteata Lec.
Banded greenhouse thrips a.n.o.---	Hercinothrips femoralis (Reut.)
Barnacle scale a.n.o. -----	Cerooplastes cirripediformis Const.
Bat bug -----	Cinex pilosellus (Horv.)
Bean aphid a.n.o. -----	Aphis rumicis L.
Bean leaf beetle a.n.o.-----	Ceratomya trifurcata (Forst.)
Bean leaf roller a.n.o. -----	Urbanus proteus (L.)
Bean thrips a.n.o. -----	Hercotothrips fasciatus (Perg.)
Bean weevil a.n.o. -----	Acanthoscelides obtectus (Say)
Bedbug a.n.o. -----	Cinex lectularius L.
Beech blight aphid a.n.o. -----	Prociphilus imbricator (Fitch)
Beech scale a.n.o. -----	Cryptococcus fagi (Baer.)
Beet armyworm a.n.o. -----	Laphygma exigua (Hbn.)
Beet leafhopper a.n.o. -----	Eutettix tenellus (Bak.)
Beet webworm a.n.o. -----	Loxostege sticticalis (L.)
Birch leaf miner a.n.o. -----	Fenusa pusilla (Lep.)
Birch skeletonizer a.n.o. -----	Bucculatrix canadensiella Chamb.
Black blowfly -----	Phormia regina (Meig.)
Black cherry aphid a.n.o. -----	Myzus cerasi (F.)
Black citrus aphid a.n.o. -----	Toxoptera aurantiae (Fonsc.)
Black grain stem sawfly a.n.o.---	Trachelus tabidus (F.)
Black-headed budworm a.n.o. -----	Peronea variana (Forn.)
Black Hills beetle a.n.o. -----	Dendroctonus ponderosae Hopk.
Black peach aphid a.n.o. -----	Anuraphis persicae-niger (Smith)
Black pecan aphid a.n.o. -----	Melanocallis caryaefoliae (Davis)
Black scale a.n.o. -----	Saissetia oleae (Bern.)
Black vine weevil a.n.o. -----	Brachyrhinus sulcatus (F.)
Black widow spider a.n.o. -----	Latrodectus mactans (F.)
Blackberry psyllid -----	Trioza tripunctata (Fitch)
Bladder maple gall -----	Phyllocoptes quadripes Shin.
Blastophaga -----	Blastophaga psenes (L.)
Body louse a.n.o. -----	Pediculus humanis corporis Deg.
Boll weevil a.n.o. -----	Anthonomus grandis Boh.
Bollworm a.n.o. -----	Heliothis armigera (Hbn.)
Booklouse a.n.o. -----	Troctes divinatorius (Mull.)
Boxelder aphid a.n.o. -----	Periphyllus negundinis (Thos.)
Boxelder bug a.n.o. -----	Leptocoris trivittatus (Say)
Boxwood leaf miner a.n.o. -----	Monarthropalpus buxi Laboulb.
Broad mite a.n.o. -----	Hemitarsonemus latus Banks
Broad-necked root borer a.n.o. --	Prionus laticollis (Drury)
Bronzed birch borer a.n.o. -----	Agrilus anxius Gory
Brown-banded cockroach a.n.o. ---	Supella supellectilium (Serv.)
Brown dog tick a.n.o. -----	Rhipicephalus sanguineus (Latr.)
Brown spider beetle a.n.o. -----	Ptinus brunneus Duft.
Brown-tail moth a.n.o. -----	Nygmia phaeorrhoea (Donov.)
Brown wheat mite -----	Tetranychina tritici Ewing
Brown winter tick a.n.o. -----	Dermacentor nigrolineatus (Pack.)
Buffalo treehopper a.n.o. -----	Cercosa bubalus (F.)

Bulb mite a.n.o. -----	Rhizoglyphus hyacinthi Edv.
Bumble flower beetle a.n.o. -----	Euphoria inda (L.)
Cabbage aphid a.n.o. -----	Brevicoryne brassicae (L.)
Cabbage curculio a.n.o. -----	Ceutorhynchus rapae Gyll.
Cabbage looper a.n.o. -----	Autographa brassicae (Riley)
Cabbage maggot a.n.o. -----	Hylemya brassicae (Bouche)
Cabbage shoot weevil -----	Ceutorhynchus assinilis Fark
Cabbage webworm a.n.o. -----	Hellula undalis (F.)
Cactus scale a.n.o. -----	Diaspis echinocacti (Bouche)
Calico scale a.n.o. -----	Lecanium cerasorum Gyll.
California pine-leaf scale -----	Aspidiotus californicus Coleman
California red scale a.n.o. -----	Aonidiella aurantii (Mask.)
Camellia scale a.n.o. -----	Lepidosaphes camelliae Hoke
Camphor thrips a.n.o. -----	Liothrips floridensis (Watson)
Carpenter bee a.n.o. -----	Kylocopa virginica (Drury)
Carpenter worm a.n.o. -----	Prionoxystus robiniae (Peck)
Carpet beetle a.n.o. -----	Anthrenus scrophulariae (L.)
Carrot beetle a.n.o. -----	Ligyrus gibbosus (Deg.)
Carrot weevil a.n.o. -----	Listronotus latiusculus (Boh.)
Casebearing clothes moth a.n.o. --	Tinea pellionella L.
Catalpa sphinx a.n.o. -----	Ceratomia catalpae (Edv.)
Cat flea a.n.o. -----	Ctenocephalides felis (Bouche)
Cecropia moth a.n.o. -----	Samia cecropia (L.)
Cherry fruitfly a.n.o. -----	Rhagoletis cingulata (Loew)
Cherry leaf miner -----	Profenusa canadensis (Marl.)
Cherry scale a.n.o. -----	Aspidiotus forbesi Johns.
Chicken mite a.n.o. -----	Dermanyssus gallinae (Deg.)
Chigger a.n.o. -----	Eutrombicula alfroddugesi (Oud.)
Chinch bug a.n.o. -----	Blissus leucopterus (Say)
Chokecherry midge -----	Contarinia virginianiae Felt
Chrysanthemum aphid a.n.o. -----	Macrosiphoniella sanborni (Gill.)
Chrysanthemum lacebug -----	Corythucha marmorata (Uhler)
Cigarette beetle a.n.o. -----	Lasioderma serricorne (F.)
Citricola scale a.n.o. -----	Coccus pseudomagnoliarum (Kuw.)
Citrus mealybug a.n.o. -----	Pseudococcus citri (Risso)
Citrus red mite a.n.o. -----	Paratetranychus citri McG.
Citrus rust mite a.n.o. -----	Phyllocoptes oleivorus Ashm.
Citrus thrips a.n.o. -----	Scirtothrips citri (Moult.)
Citrus whitefly a.n.o. -----	Dialeurodes citri (Ashm.)
Cloudy-winged whitefly a.n.o. ----	Dialeurodes citrifolii (Morgan)
Clover leaf weevil a.n.o. -----	Hypera punctata (F.)
Clover mite a.n.o. -----	Dryobia praetiosa Koch
Clover root borer a.n.o. -----	Hylastinus obscurus (Marshall)
Clover root curculio a.n.o. -----	Sitona hispidula (F.)
Clover seed chalcid a.n.o. -----	Bruchophagus gibbus (Boh.)
Cluster fly a.n.o. -----	Pollenia rudis (F.)
Codling moth a.n.o. -----	Carpocapsa pomonella (L.)
Coffee-bean weevil a.n.o. -----	Araccerus fasciculatus (Deg.)
Colorado potato beetle a.n.o. ----	Leptinotarsa decemlineata (Say)
Columbine borer a.n.o. -----	Papaipema purpurifascia (G. & R.)
Columbine leaf miner a.n.o. -----	Phytomyza minuscula Gour.

Common cattle grub a.n.o. -----	<i>Hypoderma lineatum</i> (DeVill.)
Common red spider a.n.o. -----	<i>Tetranychus telarius</i> (L.)
Constock's mealybug a.n.o. -----	<i>Pseudococcus constocki</i> (Kuw.)
Cooley's spruce gall -----	<i>Adelges cooleyi</i> (Gill.)
Corn ear worm a.n.o. -----	<i>Heliothis armigera</i> (Hbn.)
Corn flea beetle a.n.o. -----	<i>Chaetocnena pulicaria</i> Melsh.
Corn lanternfly -----	<i>Peregrinus maidis</i> (Ashm.)
Corn leaf aphid a.n.o. -----	<i>Aphis maidis</i> Fitch
Corn root aphid a.n.o. -----	<i>Anuraphis maidi-radiciis</i> (Forbes)
Corn root webworm a.n.o. -----	<i>Cranibus caliginosellus</i> Glen.
Corn rootworm a.n.o. -----	<i>Diabrotica longicornis</i> (Say)
Corn silk beetle a.n.o. -----	<i>Luperodes brunneus</i> Crotch
Cotton flea hopper a.n.o. -----	<i>Psallus seriatus</i> (Reut.)
Cotton leaf perforator a.n.o. ---	<i>Bucculatrix thurberiella</i> Busck
Cotton leaf worm a.n.o. -----	<i>Alabama argillacea</i> (Hbn.)
Cotton-square borer a.n.o. -----	<i>Strymon melinus</i> (Hbn.)
Cotton stainer a.n.o. -----	<i>Dysdercus suturellus</i> (H. S.)
Cottonwood borer a.n.o. -----	<i>Plectrodera scalator</i> (F.)
Cottonwood leaf beetle a.n.o. ---	<i>Chrysomela scripta</i> (F.)
Cottonwood scale -----	<i>Chionaspis ortholobis</i> Const.
Cottony-cushion scale a.n.o. ----	<i>Icerya purchasi</i> Mask.
Cottony maple scale a.n.o. -----	<i>Pulvinaria vitis</i> (L.)
Coulee cricket a.n.o. -----	<i>Perenabrus scabricollis</i> (Thos.)
Cowpea aphid a.n.o. -----	<i>Aphis medicaginis</i> Koch
Cowpea curculio a.n.o. -----	<i>Chalcodermus aeneus</i> Boh.
Cowpea weevil a.n.o. -----	<i>Callosobruchus maculatus</i> (F.)
Crapemyrtle aphid a.n.o. -----	<i>Myzocallis kahawaluokalani</i> Kirk.
Cross-striped cabbage worm a.n.o.	<i>Evergestis rimosalis</i> (Guen.)
Current aphid a.n.o. -----	<i>Capitophorus ribis</i> (L.)
Current fruitfly a.n.o. -----	<i>Epochra canadensis</i> Loew
Current stem girdler a.n.o. -----	<i>Janus integer</i> (Nort.)
Cyclamen mite a.n.o. -----	<i>Tarsonemus pallidus</i> Banks
Deodar weevil a.n.o. -----	<i>Pissodes nemorensis</i> Gern.
Depluming mite a.n.o. -----	<i>Cnemidoptes gallinae</i> Raill.
Diamondback moth a.n.o. -----	<i>Plutella maculipennis</i> (Curt.)
Dogwood borer -----	<i>Oberca tripunctata</i> (Swed.)
Dogwood club gall -----	<i>Mycodiplosis alternata</i> Felt
Douglas fir beetle a.n.o. -----	<i>Dendroctonus pseudotsugae</i> Hopk.
Douglas fir tussock moth a.n.o. ---	<i>Hehenocampa pseudotsugae</i> McD.
Dried fruit beetle a.n.o. -----	<i>Carpophilus hemipterus</i> (L.)
Drug store weevil a.n.o. -----	<i>Stegobium paniceum</i> (L.)
Ear tick a.n.o. -----	<i>Ornithodoros megnini</i> Duges
Eastern hemlock borer -----	<i>Melanophila fulvoguttata</i> (Harr.)
Eastern larch beetle a.n.o. -----	<i>Dendroctonus simplex</i> Lec.
Eastern spruce ball aphid a.n.o. ---	<i>Adelges abietis</i> (L.)
Eastern spruce beetle a.n.o. ----	<i>Dendroctonus piceaperda</i> Hopk.
Eastern tent caterpillar a.n.o. -	<i>Malacosoma americana</i> (F.)
Elm borer a.n.o. -----	<i>Saperda tridentata</i> Oliv.
Elm cockscomb gall a.n.o. -----	<i>Colopha ulmicola</i> (Fitch)
Elm flea beetle -----	<i>Altica ulni</i> Woods

Elm leaf beetle a.n.o. -----	<i>Galerucella xanthomelaena</i> (Schr.)
Elm sawfly a.n.o. -----	<i>Cimbex americana</i> Leach
Elm scurfy scale a.n.o. -----	<i>Chionaspis americana</i> Johns.
Elm spanworm a.n.o. -----	<i>Ennomos subsignarius</i> (Hbn.)
Engelmann spruce beetle a.n.o. --	<i>Dendroctonus engelmanni</i> Hopk.
Euonymus scale a.n.o. -----	<i>Chionaspis euonymi</i> Comst.
European alder leaf minor a.n.o. ---	<i>Fenusa dohrnii</i> (Tishbein)
European corn borer a.n.o. -----	<i>Pyrausta nubilalis</i> (Hbn.)
European earwig a.n.o. -----	<i>Forficula auricularia</i> L.
European elm scale a.n.o. -----	<i>Gossyparia spuria</i> (Mod.)
European fruit lecanium a.n.o. --	<i>Lecanium corni</i> Bouche
European grain moth a.n.o. -----	<i>Nemapogon granella</i> (L.)
European pine shoot moth a.n.o. ---	<i>Rhyacionia buoliana</i> (Schiff.)
European red mite a.n.o. -----	<i>Paratetranychus pilosus</i> (C. & F.)
European spruce sawfly a.n.o. ---	<i>Gilpinia polytoma</i> (Htg.)
European wheat stem sawfly a.n.o.	<i>Cephus pygmaeus</i> (L.)
European willow leaf beetle -----	<i>Plagiodera versicolora</i> (Laich.)
Eye-spotted budmoth a.n.o. -----	<i>Spilonota ocellana</i> (D. & S.)
Fall armyworm a.n.o. -----	<i>Lophygma frugiperda</i> (A. & S.)
Fall cankerworm a.n.o. -----	<i>Alsophila pomataria</i> (Harr.)
Fall webworm a.n.o. -----	<i>Hyphantria cunea</i> (Drury)
False chinch bug a.n.o. -----	<i>Nysius ericao</i> (Schill.)
Feather mite -----	<i>Liponyssus sylviarum</i> C. & F.
Fern scale a.n.o. -----	<i>Pinnaspis aspidistrae</i> (Sign.)
Fickle midge -----	<i>Sciara inconstans</i> (Fitch)
Field cricket a.n.o. -----	<i>Gryllus assimilis</i> F.
Fig scale a.n.o. -----	<i>Lepidosaphes ficus</i> (Sign.)
Fir sawfly -----	<i>Neodiprion abietis</i> (Harr.)
Firebrat a.n.o. -----	<i>Thermobia domestica</i> Pack.
Flatheaded apple tree borer a.n.o.	<i>Chrysobothris femorata</i> (Oliv.)
Florida red scale a.n.o. -----	<i>Chrysomphalus aonidum</i> (L.)
Flower thrips a.n.o. -----	<i>Frankliniella tritici</i> (Fitch)
Flower webworm -----	<i>Homocidus electellum</i> Hulst.
Forest tent caterpillar a.n.o. --	<i>Malacosoma disstria</i> Hbn.
Foreign grain beetle -----	<i>Cathartus advena</i> (Waltl.)
Four-lined plant bug a.n.o. -----	<i>Poecilocapsus lineatus</i> (F.)
Fowl tick a.n.o. -----	<i>Argas miniatus</i> Koch
Fruit tree leaf beetle -----	<i>Syneta albida</i> Lec.
Fruit tree leaf roller a.n.o. ---	<i>Cacoccia argyrospila</i> (Walk.)
Fuller's rose beetle a.n.o. -----	<i>Pantomorus godmani</i> (Crotch)
Furniture carpet beetle -----	<i>Anthrenus vorax</i> Wtrh.
Garden centipede a.n.o. -----	<i>Scutigera immaculata</i> (Newp.)
Garden flea hopper a.n.o. -----	<i>Ealticus citri</i> (Ashm.)
Garden springtail a.n.o. -----	<i>Bourletiella hortensis</i> (Fitch)
Garden webworm a.n.o. -----	<i>Loxostege similalis</i> (Guen.)
German cockroach a.n.o. -----	<i>Blattella germanica</i> (L.)
Giant aphid -----	<i>Longistima caryae</i> Harr.
Glabriolus thrips a.n.o. -----	<i>Taeniothrips simplex</i> (Morison)
Globose scale a.n.o. -----	<i>Lecanium prunastri</i> (Fonsc.)
Golden oak scale -----	<i>Asterolecanium variolosum</i> (Ratz.)
Goldsmith beetle -----	<i>Cotalpa lanigera</i> (L.)

Gooseberry fruitworm a.n.o. -----	<i>Zophodia convolutella</i> (Hbn.)
Gouty oak gall -----	<i>Andricus punctatus</i> Bass
Grape berry moth a.n.o. -----	<i>Polychrosis viteana</i> (Clem.)
Grape colaspis a.n.o. -----	<i>Colaspis brunnea</i> (F.)
Grape curculio a.n.o. -----	<i>Craponius inaequalis</i> (Say)
Grape leaf folder a.n.o. -----	<i>Dosmia funeralis</i> (Hbn.)
Grape leafhopper a.n.o. -----	<i>Erythroneura comae</i> (Say)
Grape phylloxera a.n.o. -----	<i>Phylloxera vitifoliae</i> (Fitch)
Grape scale a.n.o. -----	<i>Aspidiotus uvae</i> Comst.
Grape trunk borer a.n.o. -----	<i>Clytoleptus albofasciatus</i> (Lap.)
Grapevine aphid a.n.o. -----	<i>Aphis illinoisensis</i> Shin.
Gray-banded leaf roller a.n.o. --	<i>Argyrotaenia mariana</i> (Fern.)
Greedy scale a.n.o. -----	<i>Aspidiotus camelliae</i> Sign.
Green citrus aphid -----	<i>Aphis spiraeicola</i> Patch
Green clover worm a.n.o. -----	<i>Plathypena scabra</i> (F.)
Green fruitworm a.n.o. -----	<i>Graptolitha antennata</i> (Walk.)
Green June beetle a.n.o. -----	<i>Cotinus nitida</i> (L.)
Green peach aphid a.n.o. -----	<i>Myzus persicae</i> (Sulz.)
Green stinkbug a.n.o. -----	<i>Acrosternum hilare</i> (Say)
Greenhouse whitefly a.n.o. -----	<i>Trialeurodes vaporariorum</i> (Westw.)
Green-striped maple worm a.n.o. --	<i>Anisota rubicunda</i> F.
Gulf coast tick a.n.o. -----	<i>Amblyomma maculatum</i> Koch
Gypsy moth a.n.o. -----	<i>Porthetria dispar</i> (L.)
Hackberry nipple gall a.n.o. -----	<i>Pachypsylla celtidis-nanma</i> Riley
Hairy chinch bug a.n.o. -----	<i>Blissus hirtus</i> Montd.
Harlequin bug a.n.o. -----	<i>Murgantia histrionica</i> (Hahn)
Head louse a.n.o. -----	<i>Pediculus humanus humanus</i> L.
Hessian fly a.n.o. -----	<i>Phytophaga destructor</i> (Say)
Hickory nut curculio -----	<i>Conotrachelus affinis</i> Boh.
Hickory phylloxera -----	<i>Phylloxera caryaecaulis</i> Fitch
Hickory shuck worm a.n.o. -----	<i>Laspeyresia caryana</i> (Fitch)
Hickory tussock moth a.n.o. -----	<i>Halisidota caryae</i> (Harr.)
Holly leaf miner a.n.o. -----	<i>Phytomyza ilicis</i> Curt.
Hop aphid a.n.o. -----	<i>Phorodon humuli</i> (Schr.)
Horn fly a.n.o. -----	<i>Haematobia irritans</i> L.
Horse botfly a.n.o. -----	<i>Gasterophilus intestinalis</i> (Dog.)
House centipede a.n.o. -----	<i>Scutigera forceps</i> Raf.
House cricket a.n.o. -----	<i>Gryllus domesticus</i> L.
Human flea a.n.o. -----	<i>Pulex irritans</i> L.
Inbricated snout beetle a.n.o. --	<i>Epicaerus inbricatus</i> (Say)
Imported cabbage worm a.n.o. -----	<i>Pieris rapae</i> (L.)
Imported currant worm a.n.o. -----	<i>Pteronidea ribesii</i> (Scop.)
Imported willow leaf beetle -----	<i>Plagiodera versicolora</i> (Laich.)
Indian meal moth a.n.o. -----	<i>Plodia interpunctella</i> (Hbn.)
Introduced pine sawfly a.n.o. --	<i>Diprion similis</i> (Htg.)
Io moth a.n.o. -----	<i>Automeris io</i> (F.)
Iris borer a.n.o. -----	<i>Macronoctua onusta</i> Grote
Iris weevil -----	<i>Mononychus vulpeculus</i> (F.)
Japanese beetle a.n.o. -----	<i>Popillia japonica</i> Newm.
Japanese maple scale -----	<i>Leucaspis japonica</i> Ckll.

Jeffrey pine beetle a.n.o. -----	<i>Dendroctonus jeffreyi</i> Hopk.
Juniper midge -----	<i>Centarinia juniperina</i> Felt
Juniper scale a.n.o. -----	<i>Diaspis caureli</i> Targ.
Juniper webworm a.n.o. -----	<i>Dichomeris marginellus</i> (F.)
Lappet moth a.n.o. -----	<i>Epicnaptera americana</i> (Harr.)
Larch casebearer a.n.o. -----	<i>Colcophora laricella</i> Hbn.
Larch sawfly a.n.o. -----	<i>Lygaconematus erichsonii</i> (Htg.)
Larder beetle a.n.o. -----	<i>Dermestes lardarius</i> L.
Larger elm leaf beetle -----	<i>Monocosta coryli</i> (Say)
Leaf crumpler a.n.o. -----	<i>Mineola indigenella</i> (Zell.)
Lesser canna leaf roller -----	<i>Geshna cannalis</i> Quaint.
Lesser cornstalk borer a.n.o. -----	<i>Elastopalpus lignosellus</i> (Zell.)
Lesser grain borer a.n.o. -----	<i>Rhizopertha dominica</i> (F.)
Lesser peach borer a.n.o. -----	<i>Conopia pictipes</i> (G. & R.)
Lilac borer a.n.o. -----	<i>Podosesia syringae</i> (Harr.)
Lilac leaf miner a.n.o. -----	<i>Gracilaria syringella</i> F.
Lima bean vine borer a.n.o. -----	<i>Monoptilota pergratialis</i> (Hulst)
Linden wart gall -----	<i>Coccidomyia verrucicola</i> O. S.
Locust borer a.n.o. -----	<i>Cyllene robiniae</i> (Forst.)
Locust leaf miner a.n.o. -----	<i>Chalepus dorsalis</i> Thunb.
Locust twig borer -----	<i>Ecdytolopha insiticiaria</i> Zell.
Lone star tick a.n.o. -----	<i>Amblyomma americanum</i> (L.)
Long-nosed cattle louse -----	<i>Linognathus vitula</i> L.
Magnolia scale a.n.o. -----	<i>Neolecanium cornuparvum</i> (Thro)
Maple bladder gall -----	<i>Phyllocoptes quadripes</i> Shin.
Maple leaf cutter a.n.o. -----	<i>Paraclemensia acerifoliella</i> (Fitch)
Maple leaf stem borer -----	<i>Priophorus acericaulis</i> (MacGill.)
Maple nepticula -----	<i>Nepticula aericopeza</i> Zell.
Meadow plant bug a.n.o. -----	<i>Miris dolabratus</i> (L.)
Mealy flata -----	<i>Ormenis pruinosa</i> (Say)
Melon aphid a.n.o. -----	<i>Aphid gossypii</i> Glov.
Melonworm a.n.o. -----	<i>Diaphania hyalinata</i> (L.)
Mexican bean beetle a.n.o. -----	<i>Epilachna varivestis</i> Muls.
Mexican mealybug a.n.o. -----	<i>Phenacoccus gossypii</i> Towns. & Chll.
Monarch butterfly a.n.o. -----	<i>Danaus pempippe</i> (Hbn.)
Mormon cricket a.n.o. -----	<i>Anabrus simplex</i> Hald.
Mourning-cloak butterfly a.n.o. -	<i>Hamadryas antiopa</i> (L.)
Mountain pine beetle a.n.o. -----	<i>Dendroctonus monticolae</i> Hopk.
Mulberry whitefly a.n.o. -----	<i>Tetraleurodes mori</i> (Quaint.)
Nantucket pine shoot moth -----	<i>Rhyacionia frustrana</i> (Const.)
Narcissus bulb fly a.n.o. -----	<i>Merodon equestris</i> (F.)
Native elm bark beetle a.n.o. ---	<i>Hylurgopinus rufipes</i> (Eich.)
Norway maple aphid a.n.o. -----	<i>Periphyllus lyropictus</i> (Kess.)
Nose botfly a.n.o. -----	<i>Gasterophilus haemorrhoidalis</i> (L.)
Oak rosette gall -----	<i>Cynips frondosa</i> Bass.
Obscure scale a.n.o. -----	<i>Chrysomphalus obscurus</i> (Const.)
Oleander aphid -----	<i>Aphis nerii</i> Fonsc.
Oleander scale a.n.o. -----	<i>Aspidiotus hederæ</i> (Vallot)
Olive scale -----	<i>Parlatoria oleæ</i> (Colv.)

Onion maggot a.n.o. -----	<i>Hylemya antiqua</i> (Meig.)
Onion thrips a.n.o. -----	<i>Thrips tabaci</i> Lind.
Orange-striped oak worm a.n.o. --	<i>Anisota senatoria</i> (A. & S.)
Orange tortrix a.n.o. -----	<i>Argyrotaenia citrana</i> (Fern.)
Orchid weevil -----	<i>Diorymerellus marginellus</i> F.
Oriental cockroach a.n.o. -----	<i>Blatta orientalis</i> L.
Oriental fruit moth a.n.o. -----	<i>Grapholitha molesta</i> (Busck)
Oystershell scale a.n.o. -----	<i>Lepidosaphes ulmi</i> (L.)
Pacific coast tick a.n.o. -----	<i>Dermacenter occidentalis</i> Neun.
Painted hickory borer a.n.o. -----	<i>Cyllene caryae</i> Gahan
Pale tussock moth a.n.o. -----	<i>Halisidota tessellaris</i> (A. & S.)
Pale western cutworm a.n.o. -----	<i>Agrotis orthogonia</i> Morr.
Pales weevil a.n.o. -----	<i>Hylobius pales</i> (Hbst.)
Palm-leaf skeletonizer -----	<i>Homaledra sabalella</i> Chamb.
Palmerworm a.n.o. -----	<i>Dichomeris ligulella</i> Hbn.
Papaya fruitfly a.n.o. -----	<i>Toxotrypana curvicauda</i> Gerst.
Pea aphid a.n.o. -----	<i>Macrosiphum pisi</i> (Kltb.)
Pea moth a.n.o. -----	<i>Laspeyresia nigricana</i> (Steph.)
Pea weevil a.n.o. -----	<i>Bruchus pisorum</i> (L.)
Peach and plum slug -----	<i>Eriocarpoides amygdalina</i> Roh.
Peach borer a.n.o. -----	<i>Conopia exitiosa</i> (Say)
Peach twig borer a.n.o. -----	<i>Anarsia lineatella</i> Zell.
Pear leaf blister mite a.n.o. --	<i>Eriophyes pyri</i> Fgst.
Pear midge a.n.o. -----	<i>Contarinia pyrivora</i> (Riley)
Pear psylla a.n.o. -----	<i>Psylla pyricola</i> (Focrst.)
Pear slug a.n.o. -----	<i>Caliroa cerasi</i> (L.)
Pear thrips a.n.o. -----	<i>Taeniothrips inconsequens</i> (Uzel)
Pecan carpenter worm a.n.o. -----	<i>Cossula magnifica</i> (Stkr.)
Pecan nut casebearer a.n.o. -----	<i>Acrobasis caryae</i> Grote
Pecan phylloxera a.n.o. -----	<i>Phylloxera devastatrix</i> Perg.
Pecan weevil a.n.o. -----	<i>Curculio caryae</i> (Horn)
Pepper weevil a.n.o. -----	<i>Anthonomus eugenii</i> Cano
Periodical cicada a.n.o. -----	<i>Magicicada septendecim</i> (L.)
Phlox plant bug a.n.o. -----	<i>Lopidea davisii</i> Knight
Pickleworm a.n.o. -----	<i>Diaphania nitidalis</i> (Stoll)
Pigeon fly a.n.o. -----	<i>Pseudolynchia canariensis</i> (Macq.)
Pigeon tremex a.n.o. -----	<i>Tremex columba</i> (L.)
Pine bark aphid a.n.o. -----	<i>Pineus strobi</i> (Htg.)
Pine needle scale a.n.o. -----	<i>Chionaspis pinifoliae</i> (Fitch)
Pine root-collar weevil a.n.o. --	<i>Hylobius radialis</i> Buch.
Pine spittle bug a.n.o. -----	<i>Aphrophora parallela</i> (Say)
Pine tube moth a.n.o. -----	<i>Argyrotaenia pinatubana</i> (Kearf.)
Pink bollworm a.n.o. -----	<i>Pectinophora gossypiella</i> (Saund.)
Pistol casebearer a.n.o. -----	<i>Coleophora malivorella</i> Riley
Pitch-mass borer -----	<i>Parharmonia pini</i> Kellicott
Pitch twig moth a.n.o. -----	<i>Petrova comstockiana</i> (Fern.)
Plum curculio a.n.o. -----	<i>Conotrachelus nemuphar</i> (Hbst.)
Plum leafhopper a.n.o. -----	<i>Macropsis trinaculata</i> (Fitch)
Polka dot wasp moth -----	<i>Syntomeida epilais</i> Walk.
Poplar borer a.n.o. -----	<i>Saperda calcarata</i> Say
Poplar and willow borer a.n.o. --	<i>Sternonchetus lapathi</i> (L.)

Poplar tent maker -----	Ichthyura inclusa Hbn.
Potato aphid a.n.o. -----	Macrosiphum solanifolii (Ashm.)
Potato flea beetle a.n.o. -----	Epitrix cucumeris (Harr.)
Potato leafhopper a.n.o. -----	Eupoasca fabae (Harr.)
Potato psyllid a.n.o. -----	Paratrioza cockerelli (Sulc)
Potato stalk borer a.n.o. -----	Trichobaris trinotata (Say)
Potato tuber worm a.n.o. -----	Gnorimoschema operculella (Zell.)
Pubescent oak kermes -----	Kermes pubescens Bogue
Purple scale a.n.o. -----	Lepidosaphes beckii (Newm.)
Puss caterpillar a.n.o. -----	Megalopyge opercularis (A. & S.)
Raisin moth a.n.o. -----	Ephestia figulilella Greg.
Raspberry cane borer a.n.o. -----	Oberca bimaculata (Oliv.)
Raspberry fruitworm a.n.o. -----	Byturus unicolor Say
Redbud aphid -----	Aphis pawneeae Hottes
Red-headed pine sawfly a.n.o. ---	Neodiprion lecontei (Fitch)
Red-humped caterpillar a.n.o. ---	Schizura concinna (A. & S.)
Red-humped oak caterpillar. ---	Symmerista albifrons (A. & S.)
Red-legged flea beetle a.n.o. ---	Derocrepis erythropus (Melsh.)
Red-necked cane borer a.n.o. ---	Agrilus ruficollis (F.)
Red turnip beetle a.n.o. -----	Entomoscelis adonidis (Pallas)
Rhododendron borer a.n.o. -----	Conopia rhododendri (Boutn.)
Rhododendron lacebug a.n.o. -----	Stephanitis rhododendri Horv.
Rhododendron midge -----	Giardomyia rhododendri Felt
Rhubarb curculio a.n.o. -----	Lixus concavus Say
Rocky Mountain spotted fever tick	-Dermacentor andersoni Stiles
Rose aphid a.n.o. -----	Macrosiphum rosae (L.)
Rose chafer a.n.o. -----	Macroductylus subspinosus (F.)
Rose curculio a.n.o. -----	Rhynchites bicolor (F.)
Rose leaf beetle a.n.o. -----	Nodonota puncticollis Say
Rose midge a.n.o. -----	Dasynura rhodophaga (Coq.)
Rose sawfly a.n.o. -----	Caliroa aethiops (F.)
Rose scale a.n.o. -----	Aulacaspis rosae (Bouche)
Rosy apple aphid a.n.o. -----	Anuraphis roseus Baker
Round headed apple tree borer	
a.n.o. -----	Saperda candida F.
Rusty plum aphid a.n.o. -----	Hysteroncra setariae (Thos.)
Saddleback caterpillar a.n.o. ---	Sibine stimulea (Clem.)
Saddled prominent a.n.o. -----	Heterocampa guttivitta (Walk.)
Salmon fly -----	Taeniopteryx pacifica Banks
Salt-marsh caterpillar a.n.o. ---	Estigmene acrea (Drury)
San Jose scale a.n.o. -----	Aspidiotus perniciosus Const.
Satin moth a.n.o. -----	Stilpnotia salicis (L.)
Saw-toothed grain beetle a.n.o. -	Oryzaephilus surinamensis (L.)
Say's blister beetle a.n.o. -----	Pomphopoea sayi (Lec.)
Say's stinkbug a.n.o. -----	Chlorochroa sayi Stal
Scallop-shell moth -----	Calocalpe undulata L.
Scorworn a.n.o. -----	Cochliomyia americana C. & F.
Scurfy scale a.n.o. -----	Chionaspis furfura (Fitch)
Seed-corn beetle a.n.o. -----	Agonoderus lecontei Chaud.
Seed-corn maggot a.n.o. -----	Hylemya cilicrura (Rond.)
Sheep botfly a.n.o. -----	Oestrus ovis L.

Sheep tick a.n.o. -----	Melophagus ovinus (L.)
Short-nosed cattle louse a.n.o. --	Haematopinus eurytetrus Nitz.
Shot-hole borer a.n.o. -----	Scolytus rugulosus (Ratz.)
Silverfish a.n.o. -----	Lepisma saccharina L.
Silver-spotted halisidota -----	Euschasia argentata Pack.
Silver-spotted skipper -----	Proteides clarus (Cran.)
Sitka spruce beetle a.n.o. -----	Dendroctonus obesus (Mann.)
Sitka spruce gall aphid -----	Adelges cooleyi (Gill.)
Six-spotted leafhopper a.n.o. ----	Macrostelus divinus (Uhl.)
Six-spotted mite a.n.o. -----	Tetranychus sexmaculatus Riley
Smaller European elm bark beetle a.n.o. -----	Scolytus multistriatus (Marshall)
Snowy tree cricket a.n.o. -----	Oecanthus niveus (Deg.)
Soft scale a.n.o. -----	Coccus hesperidum L.
Sorghum webworm a.n.o. -----	Celana sorghiella (Riley)
Sourgrum casecutter -----	Antispila nyssaefoliella Glen.
Southern buffalo gnat a.n.o. -----	Eusimulium pecuarum (Riley)
Southern cabbage worm a.n.o. -----	Pieris protodice (Bdv. & Lec.)
Southern corn rootworm a.n.o. ----	Diabrotica duodecimpunctata (F.)
Southern cornstalk borer a.n.o. --	Diatraea crambidoides (Grote)
Southern green stinkbug a.n.o. --	Nezara viridula (L.)
Southern mole cricket a.n.o. -----	Scapteriscus acletus R. & H.
Southern pine beetle a.n.o. -----	Dendroctonus frontalis Zimm.
Southwestern corn borer a.n.o. ----	Diatraea grandiosella Dyar
Spirea aphid a.n.o. -----	Aphis spiraeicola Patch
Spotted cucumber beetle a.n.o. --	Diabrotica duodecimpunctata (F.)
Spotted willow leaf beetle -----	Chrysomela lapponica (L.)
Spring cankerworm a.n.o. -----	Paleacrita vernata (Peck)
Spruce bud scale -----	Physokermes piceae Schr.
Spruce budworm a.n.o. -----	Cacoecia furiferana (Glen.)
Spruce gall aphid -----	Pineus pinifoliae (Fitch)
Spruce mite -----	Paratetranychus uniusgus Jacobi
Spruce needle miner -----	Taniva albolineana Kearf.
Squash beetle a.n.o. -----	Epilachna borealis (F.)
Squash borer a.n.o. -----	Melittia satyriniformis Hbn.
Squash bug a.n.o. -----	Anasa tristis (Deg.)
Stablefly a.n.o. -----	Stomoxys calcitrans (L.)
Stalk borer a.n.o. -----	Papaipema nebris nitela (Guen.)
Steel-blue grapevine flea beetle	Altica carinata Germ.
Sticktight flea a.n.o. -----	Echidnophaga gallinacea (Westw.)
Strawberry crown borer a.n.o. ----	Tyloderma fragariae (Riley)
Strawberry crown miner -----	Aristotelia fragariae Busck
Strawberry fruitworm a.n.o. -----	Cnephasia longana (Haw.)
Strawberry leaf roller a.n.o. ----	Ancyliis comptana (Froel.)
Strawberry root aphid a.n.o. -----	Aphis forbesi Weed
Strawberry root weevil a.n.o. ----	Brachyrhinus ovatus (L.)
Strawberry weevil a.n.o. -----	Anthonomus signatus Say
Striped cucumber beetle a.n.o. --	Diabrotica vittata (F.)
Striped flea beetle a.n.o. -----	Phyllotreta vittata (F.)
Striped tortoise beetle -----	Metritona bivittata (Say)
Suckfly a.n.o. -----	Dicyphus minimus Uhl.
Sugar-beet root maggot -----	Eurycephalomyia nyopaeiformis Roeder
Sugar-beet wireworm a.n.o. -----	Limoniis californicus (Mann.)

Sugarcane beetle a.n.o. -----	<i>Euctheola rugiceps</i> (Lec.)
Sugarcane borer a.n.o. -----	<i>Diatraea saccharalis</i> (F.)
Sugarcane rootstock weevil -----	<i>Anacrinus subnudus</i> Buch.
Sugar maple borer a.n.o. -----	<i>Glycobius speciosus</i> (Say)
Sunflower weevil -----	<i>Rhodothenus tredecimpunctatus</i> (Ill.)
Sweetpotato flea beetle a.n.o. ---	<i>Chaetocnema confinis</i> Crotch
Sweetpotato hornworm a.n.o. -----	<i>Herse cingulata</i> (F.)
Sweetpotato leaf beetle -----	<i>Typophorus viridicyaneus</i> Crotch
Sweetpotato weevil a.n.o. -----	<i>Cylas formicarius</i> (F.)
Tarnished plant bug a.n.o. -----	<i>Lygus pratensis oblineatus</i> (Say)
Three-cornered alfalfa hopper a.n.o. -	<i>Stictocephala festina</i> (Say)
Three-lined potato beetle a.n.o. -	<i>Lema trilineata</i> (Oliv.)
Tissue paper bug -----	<i>Thylodrias contractus</i> Mots.
Tobacco budworm a.n.o. -----	<i>Heliothis virescens</i> (F.)
Tobacco flea beetle a.n.o. -----	<i>Epitrix parvula</i> (F.)
Tobacco moth a.n.o. -----	<i>Ephesia clutella</i> (Hbn.)
Tobacco thrips a.n.o. -----	<i>Frankliniella fusca</i> (Hinds)
Tomato fruitworm a.n.o. -----	<i>Heliothis armigera</i> (Hbn.)
Tomato pinworm a.n.o. -----	<i>Keiferia lycopersicella</i> (Busck)
Tomato psyllid a.n.o. -----	<i>Paratrioza cockerelli</i> (Sulc)
Tomato stilt bug -----	<i>Jalysus spinosus</i> (Say)
Tomato worm a.n.o. -----	<i>Protoparce sexta</i> (Johan.)
Tropical rat mite a.n.o. -----	<i>Liponyssus bacoti</i> (Hirst)
Tuliptree scale a.n.o. -----	<i>Toumeyella liriodendri</i> (Gmel.)
Turkey gnat a.n.o. -----	<i>Simulium meridionale</i> Riley
Turnip aphid a.n.o. -----	<i>Rhopalosiphum pseudobrassicae</i> (Davis)
Twig girdler a.n.o. -----	<i>Oncideres cingulatus</i> (Say)
Twig pruner a.n.o. -----	<i>Hypermallus villosus</i> (F.)
Two-lined chestnut borer a.n.o. -	<i>Agilus bilineatus</i> (Web.)
Two-marked tree hopper a.n.o. ---	<i>Enchenopa binotata</i> Say
Ugly-nest caterpillar a.n.o. -----	<i>Cacoecia cerasivorana</i> (Fitch)
Varied carpet beetle a.n.o. -----	<i>Anthrenus verbasci</i> (L.)
Variogated cutworm a.n.o. -----	<i>Peridroma margaritosa</i> (Haw.)
Vegetable weevil a.n.o. -----	<i>Listroderes obliquus</i> Klug
Velvetbean caterpillar a.n.o. ---	<i>Anticarsia gemmatilis</i> (Hbn.)
Vetch bruchid a.n.o. -----	<i>Bruchus brachialis</i> Fabricius
Walkingstick a.n.o. -----	<i>Diapheromera femorata</i> (Say)
Walnut caterpillar a.n.o. -----	<i>Datana integerrima</i> G. & R.
Walnut husk fly a.n.o. -----	<i>Rhagoletis completa</i> Cress.
Watercress leaf beetle a.n.o. ---	<i>Phaedon aeruginosus</i> Suffr.
Waterlily aphid -----	<i>Rhopalosiphum nymphaeae</i> (L.)
Webbing clothes moth a.n.o. -----	<i>Tineola biselliella</i> (Hun.)
Western grape rootworm a.n.o. ---	<i>Adoxus obscurus</i> (L.)
Western pine beetle a.n.o. -----	<i>Dendroctonus brevicornis</i> Lec.
Western potato flea beetle a.n.o. -	<i>Epitrix subcrinita</i> Lec.
Western spotted cucumber beetle a.n.o. -	<i>Diabrotica soror</i> Lec.
Western tent caterpillar a.n.o. -	<i>Malacosoma pluvialis</i> (Drar)

Wharf borer -----	<i>Nacorda melanura</i> (L.)
Wheat jointworm a.n.o. -----	<i>Harmolita tritici</i> (Fitch)
Wheat midge a.n.o. -----	<i>Thecodiplosis mosellana</i> Gehin
Wheat stem maggot a.n.o. -----	<i>Meromyza americana</i> Fitch
Wheat stem sawfly a.n.o. -----	<i>Cephus cinctus</i> Nort.
Wheat straw worm a.n.o. -----	<i>Harmolita grandis</i> (Riley)
White apple leafhopper a.n.o. ---	<i>Typhlocyba pomaria</i> McAtee
White-fringed beetle a.n.o. ----	<i>Pantomorus leucoloma</i> (Boh.)
White-lined sphinx a.n.o. -----	<i>Sphinx lineata</i> F.
White-marked spider beetle a.n.o.	<i>Ptinus fur</i> L.
White-marked tussock moth a.n.o.	<i>Homocampa leucostigma</i> (A. & S.)
White peach scale a.n.o. -----	<i>Aulacaspis pentagona</i> (Targ.)
White-pine aphid -----	<i>Cinara strobis</i> Fitch
White-pine cone beetle a.n.o. ---	<i>Conophthorus coniperda</i> (Schwarz)
White-pine weevil a.n.o. -----	<i>Pissodes strobis</i> (Peck)
Woolly alder aphid a.n.o. -----	<i>Prociphilus tessellatus</i> (Fitch)
Woolly elm aphid a.n.o. -----	<i>Eriosoma americanum</i> (Riley)
Woolly larch aphid -----	<i>Chermes strobilobius</i> Kltb.
Woolly whitefly a.n.o. -----	<i>Aleurothrixus howardi</i> (Quaint.)
Woolly pine scale -----	<i>Pseudophilippa quaintancii</i> Ckll.
Yellow-headed spruce sawfly a.n.o.	<i>Pikonema alaskensis</i> (Roh.)
Yellow-necked caterpillar a.n.o. -	<i>Datana ministra</i> (Drury)
Yellow scale a.n.o. -----	<i>Aonidiella citrinus</i> (Coq.)
Yellow sugarcane aphid -----	<i>Sipha flava</i> (Forbes)
Zimmerman's pine tip moth -----	<i>Pinipostis zimmermanni</i> Grote





